

# Audi

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## Workshop Manual

Audi A6 2011 ➤

Audi A6 China 2012 ➤

Audi A7 Sportback 2011 ➤

4-cylinder direct injection engine (1.8, 2.0 ltr. 4-valve  
turbo TFSI - generation II)

Engine ID	CAE B	CDN B	CDZ A	CHJA	CAE D					
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Edition 12.2017



## List of Workshop Manual Repair Groups



### Repair Group

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Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

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## 00 – Technical data

### 1 Identification

(ARL005544; Edition 12.2017)

All information can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00 ; Identification .



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## 2 Safety precautions

⇒ “[2.1 Safety precautions when working on the high-voltage system](#)”, page 2

⇒ “[2.2 Safety precautions when working in the vicinity of high-voltage components](#)”, page 3

⇒ “[2.3 Safety precautions for all vehicles](#)”, page 3

### 2.1 Safety precautions when working on the high-voltage system

High voltage can cause fatal injury.

The voltage levels in the high-voltage system constitute a safety hazard. Danger of severe or fatal injuries from electric shock.

- Persons with life-sustaining or other electronic medical devices in or on their body must not perform any work on the high-voltage system. Such medical devices include internal analgesic pumps, implanted defibrillators, pacemakers, insulin pumps and hearing aids.
- The high-voltage system must be de-energised by a suitably qualified person.

#### Risk of injury - engine may start unexpectedly

It is difficult to determine whether the drive system of an electric vehicle or hybrid vehicle is active. Moving parts can trap or draw in parts of the body and/or clothing (safety hazard).

- Switch off ignition.
- Place ignition key outside vehicle interior.

#### Risk of injury if auxiliary air conditioner is activated

On electric and hybrid vehicles, the auxiliary air conditioner can switch itself on if it has been activated. The radiator fans can start up automatically and trap or draw in parts of the body.

- Deactivate the auxiliary air conditioner.

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#### Risk of damage to high-voltage wiring

Incorrect handling may result in damage to the insulation for high-voltage wires or high-voltage connectors.

- Never use high-voltage wiring or high-voltage connectors as a support.
- Never support tools or equipment on high-voltage wires and high-voltage connectors.
- Never bend or kink high-voltage wiring.
- Pay attention to coding when connecting high-voltage connections.

## 2.2 Safety precautions when working in the vicinity of high-voltage components

High voltage can cause fatal injury.

The voltage levels in the high-voltage system constitute a safety hazard. Danger of severe or fatal injuries from electric shock if high-voltage components or high-voltage wiring are damaged.

- Carry out visual check of high-voltage components and high-voltage wiring.
- Never use cutting/forming tools or other sharp-edged implements.
- **Never perform work using welding, brazing, thermal bonding or hot air.**

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## 2.3 Safety precautions for all vehicles

All information can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00 ; Safety precautions .



### 3 Repair instructions

All information can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00 ; Repair instructions .



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## 10 – Removing and installing engine

### 1 Removing and installing engine

⇒ "1.1 Removing engine", page 5

⇒ "1.2 Securing engine to engine and gearbox support",  
page 32

⇒ "1.3 Installing engine", page 32

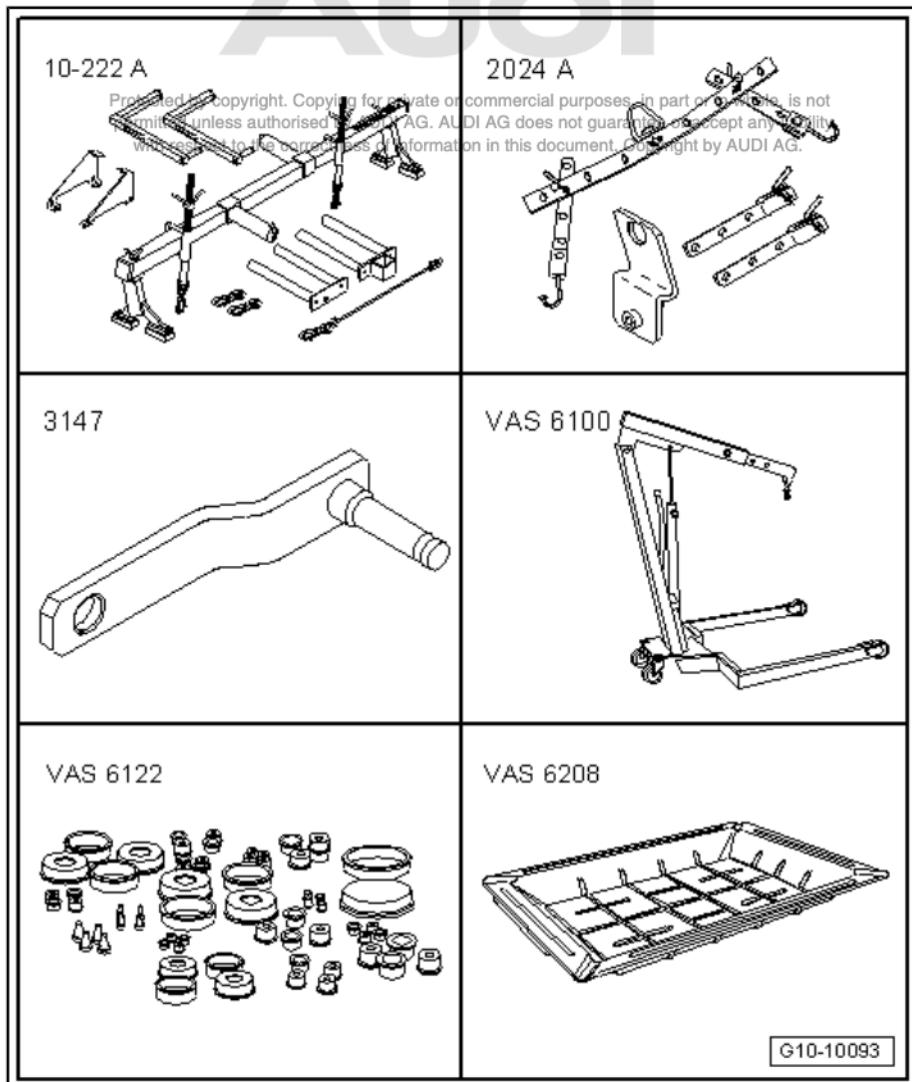
#### 1.1 Removing engine

⇒ "1.1.1 Removing engine - vehicles without hybrid drive",  
page 5

⇒ "1.1.2 Removing engine - vehicles with hybrid drive",  
page 18

##### 1.1.1 Removing engine - vehicles without hybrid drive

Special tools and workshop equipment required



- ◆ Support bracket - 10 - 222 A-
- ◆ Lifting tackle - 2024 A-

- ◆ Gearbox support - 3147-
- ◆ Workshop hoist - VAS 6100-
- ◆ Engine bung set - VAS 6122-
- ◆ Drip tray for workshop hoist - VAS 6208-
- ◆ Hose clip pliers - VAS 6362-



- ◆ Counterhold tool - T10355-



## Procedure

### CAUTION

Risk of injury if vehicle tips over when the engine is removed.

Danger of trapping or crushing parts of the body.

- The luggage compartment must be empty.
  - Make sure the vehicle is secured.
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### Note

- ◆ The engine is removed upwards without gearbox.
  - ◆ Fit all cable ties in the original positions when installing.
- 
- Disconnect earth wire from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
  - Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

### CAUTION

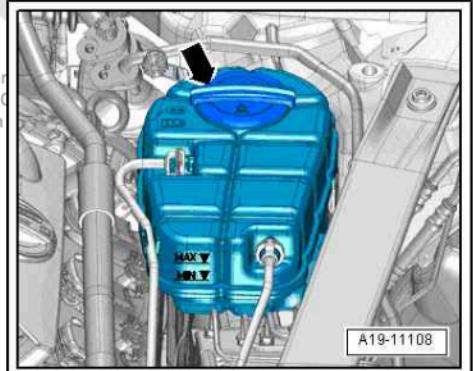
The cooling system is under pressure when the engine is hot.  
 Risk of scalding due to hot steam and hot coolant.

Danger of scalding skin and other parts of the body.

- Put on protective gloves.
- Put on safety goggles.
- Cover filler cap on expansion tank with a cloth and open carefully to release pressure.

- Open filler cap -arrow- on coolant expansion tank.

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- Remove nuts -1 and 2- (accessible from above) for front silencer.

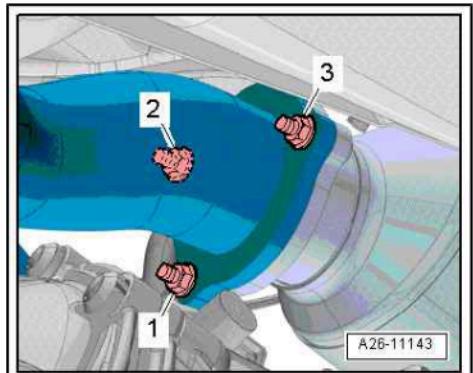
### Note

*Nut -3- is removed at a later stage.*

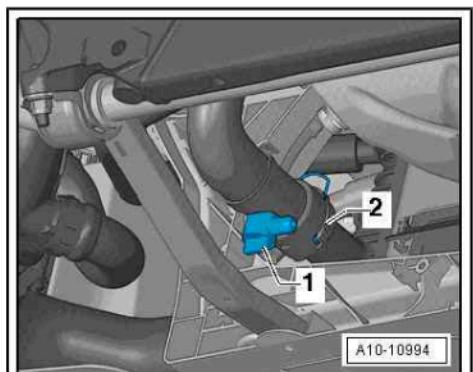
- Remove wheel housing liners (front left and front right) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .
- Remove wheel spoilers (front) on both sides ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front) .
- Remove noise insulation panels ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Place drip tray for workshop hoist - VAS 6208- beneath engine.
- Open drain screw -1- at connection and drain off coolant; then detach connection -2- from radiator (lift retaining clip).
- Move coolant hose clear at longitudinal member.

Vehicles with multitronic gearbox/8-speed automatic gearbox:

- Remove subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Removing and installing subframe cross brace .

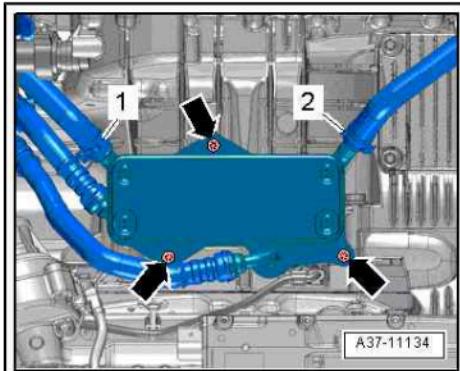


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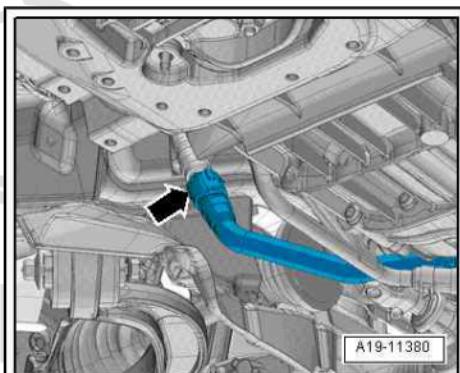
- Place drip tray for workshop hoist - VAS 6208- beneath ATF cooler.
- Release hose clip -2- and detach coolant hose.
- Remove bolts -arrows- and push ATF cooler slightly to the side.



**Note**

*Place a cloth underneath to catch escaping coolant.*

- Lift retaining clip -arrow-, disconnect coolant hose and move clear.



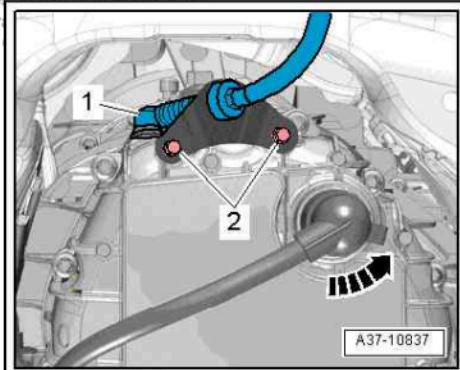
**Vehicles with multitronic gearbox:**

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**! NOTICE**

Risk of irreparable damage due to electrostatic discharge.

- Do NOT touch connector contacts with your hands.
- Touch the lifting platform or other earthed object to discharge static electricity.
- Touch gearbox housing with your hand (without wearing gloves) to eliminate static charge.
- Turn retainer catch anti-clockwise -arrow-, then unplug electrical connector at gearbox and move wiring clear.

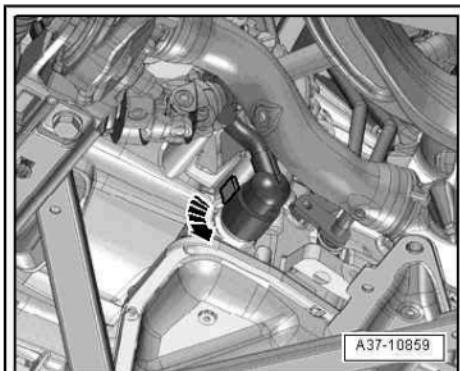


**Vehicles with 8-speed automatic gearbox:**

**! NOTICE**

Risk of irreparable damage due to electrostatic discharge.

- Do NOT touch connector contacts with your hands.
- Touch the lifting platform or other earthed object to discharge static electricity.
- Touch gearbox housing with your hand (without wearing gloves) to eliminate static charge.
- Turn retainer catch anti-clockwise -arrow- and unplug electrical connector at gearbox.

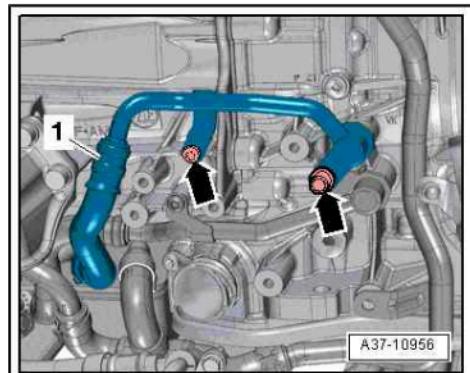




### Note

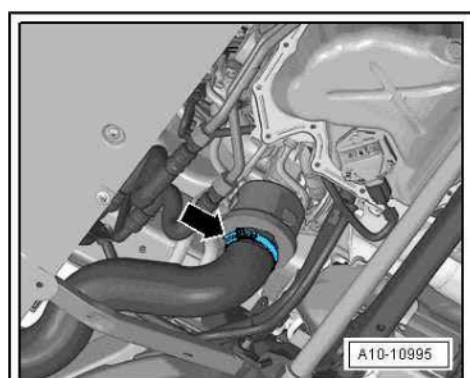
*Place a cloth underneath to catch escaping ATF.*

- Remove bolts -arrows- and detach ATF line -1- from gearbox.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .

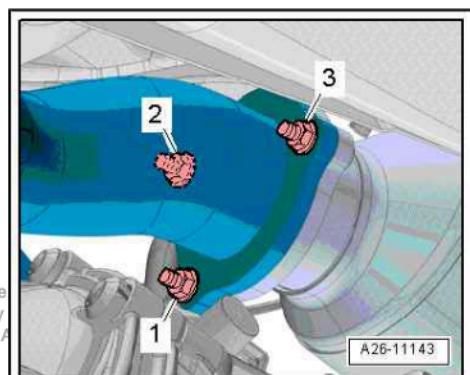


All vehicles (continued):

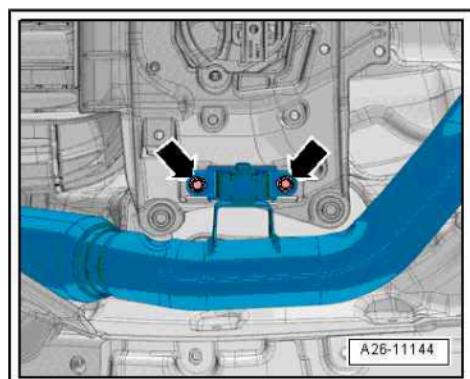
- Release hose clip -arrow-, disconnect air hose and press to one side.



- Remove nut -3- for front silencer.



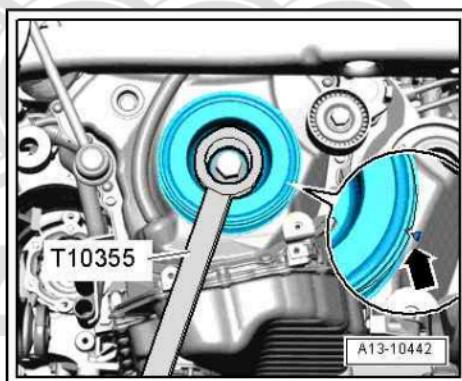
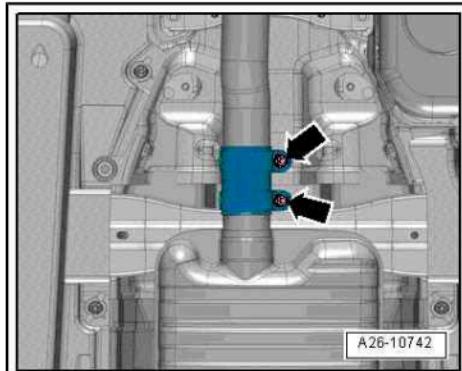
- Remove bolts -arrows- for front exhaust pipe.



 **NOTICE**

Risk of damage to flexible joint if handled incorrectly.

- Do not bend flexible joint more than 10°.
- Install flexible joint so that it is not under tension.
- Unfasten connections -arrows-, push clamp towards rear and detach front silencer.
- Counterhold crankshaft at vibration damper using counterhold tool - T10355- when slackening bolts for torque converter.

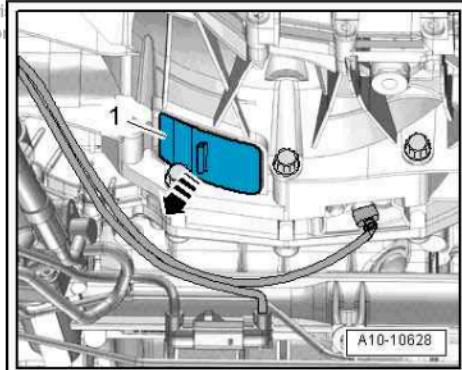


- Detach bottom cover -1- from gearbox -arrow-.

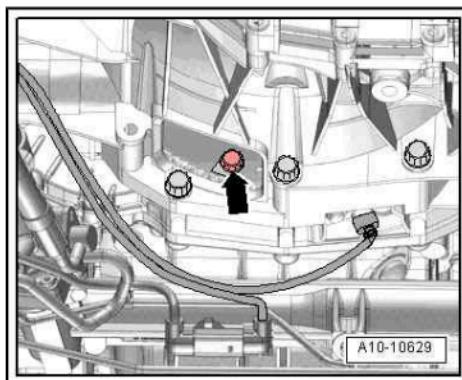
 **Note**

*When performing the next step, turn the crankshaft only in the normal direction of rotation -arrow-.*

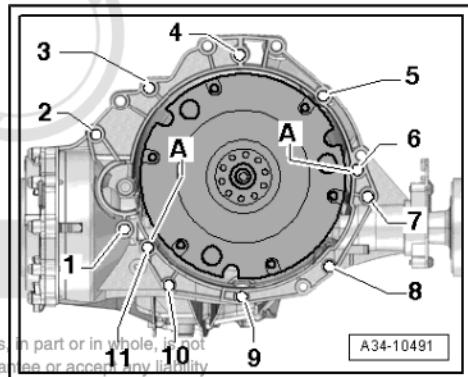
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- Remove 3 bolts -arrow- for drive plate, turning crankshaft 120° in normal direction of rotation each time.



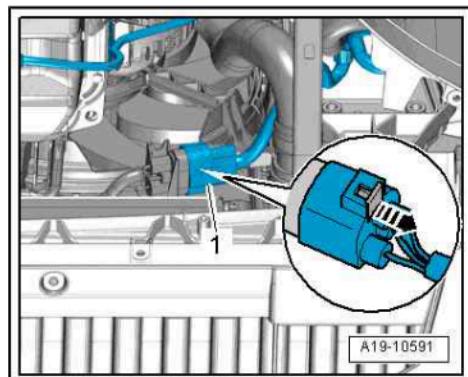
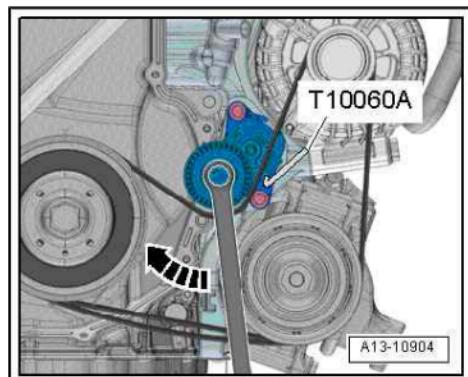
- Remove bolts -1, 7, 8, 9, 10, 11- securing engine to gearbox.



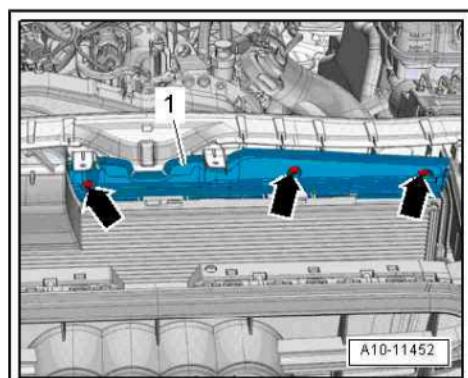
 **NOTICE**

Risk of irreparable damage due to running a used belt in the opposite direction when it is refitted.

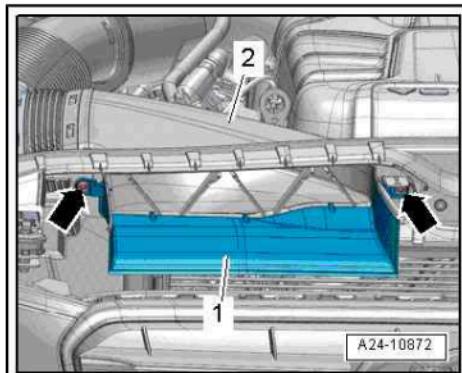
- Mark running direction before removing.
- Pay attention to running direction when reinstalling.
- Swivel tensioner in clockwise direction -arrow-, detach poly V-belt from pulley for air conditioner compressor and release tensioner.
- Take off poly V-belt.
- Detach air conditioner compressor from bracket for ancillaries and tie up to one side ⇒ Heating, air conditioning; Rep. gr. 87 ; Air conditioner compressor; Detaching and attaching air conditioner compressor at bracket .
- Take electrical connector -1- for radiator fan out of bracket and unplug connector (push retainer to the rear -arrow- and press down release catch).
- Move clear electrical wiring harness going to radiator fan control unit.
- Remove lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .



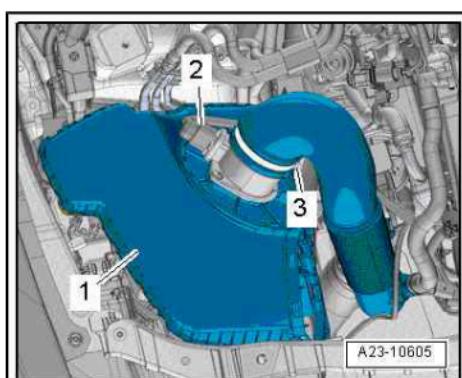
- Remove bolts -arrows- and detach air duct -1-.



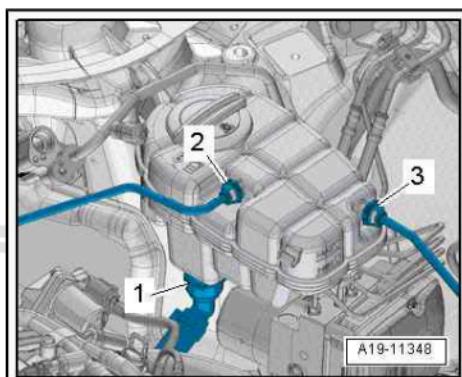
- Remove bolts -arrows- and detach air duct -2-.



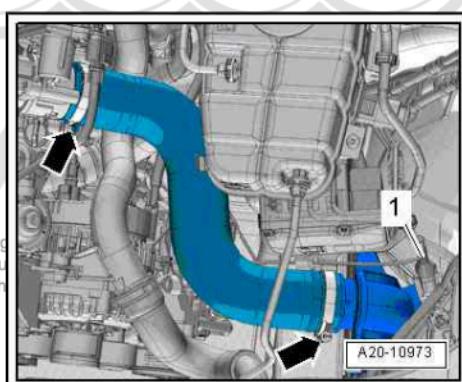
- Unplug electrical connector -2-.
- Release hose clip -3- and detach air hose from air mass meter - G70- .
- Detach air cleaner housing -1-.



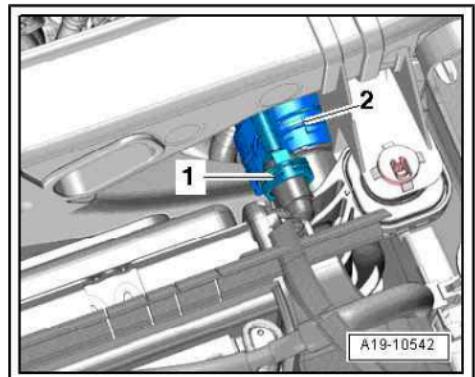
- Lift retaining clips -1- and -2- and disconnect coolant hoses.



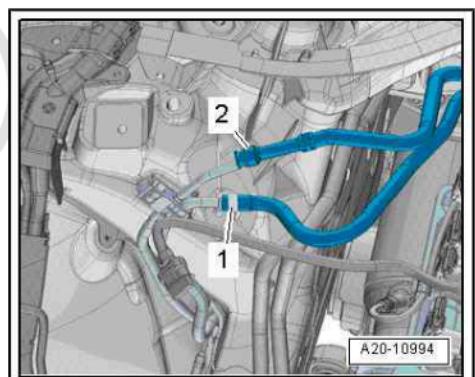
- Release hose clips -arrows- and remove air hose.
- Unplug electrical connector for charge pressure sender - G31- -item 1- and move electrical wiring clear.



- Lift retaining clip -2- and disconnect coolant hose.

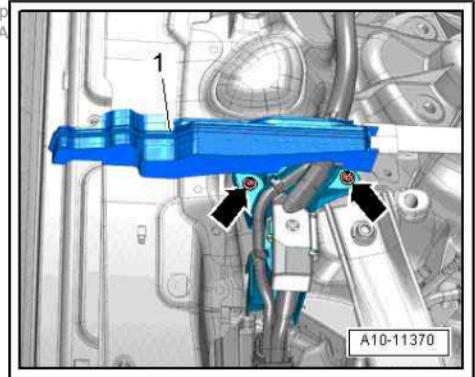


- Disconnect fuel line -2- ⇒ Fuel supply system; Rep. gr. 20 ;  
 Plug-in connectors; Disconnecting plug-in connectors .
- Release hose clip -1- and disconnect hose from activated charcoal filter.

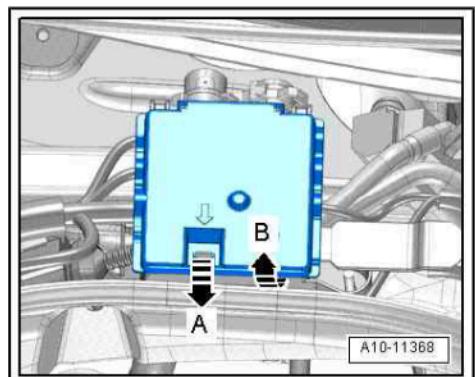


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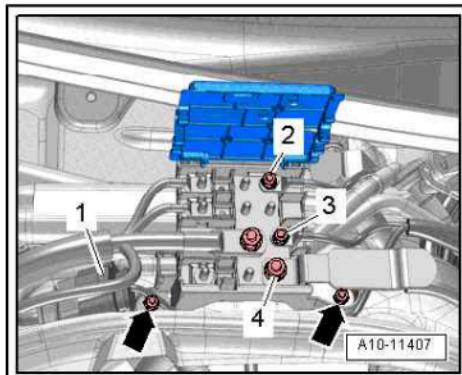
- Press foam wedge -1- to one side.
- Remove bolts -arrows-.
- Remove body brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Suspension strut, upper links; Removing and installing body brace .



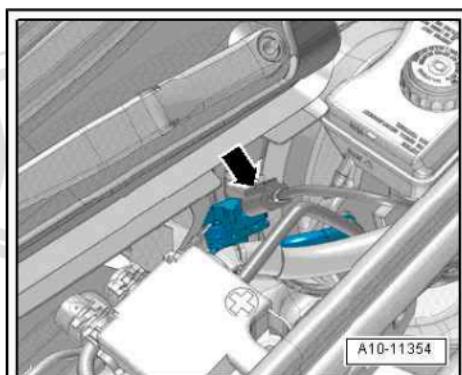
- Release retainer -arrow A- and open cover -arrow B-.



- Remove nuts -2 and 4- and move electrical wiring clear.
- Detach electrical connector -1- from bracket and unplug.
- Remove nuts -arrows- and detach terminal 30 wiring junction - TV2- from plenum chamber partition panel.



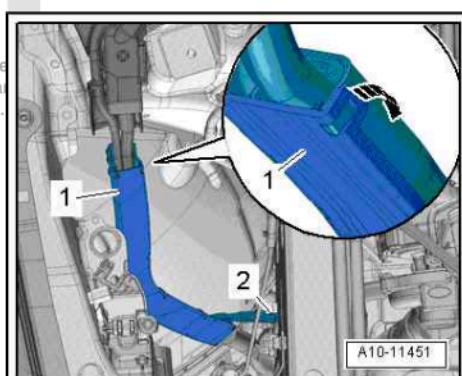
- If fitted, unplug electrical connector at brake servo pressure sensor - G294- -arrow-.



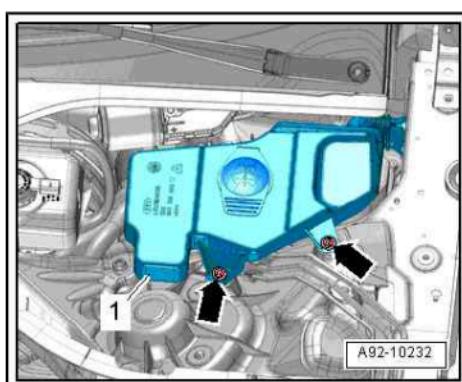
- Unscrew nut -2- on longitudinal member (right-side) and move earth cables clear.

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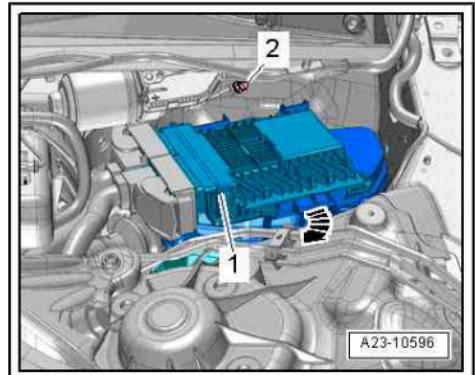
- Release catch -arrow- to open wiring duct -1- and move electrical wiring harness clear.



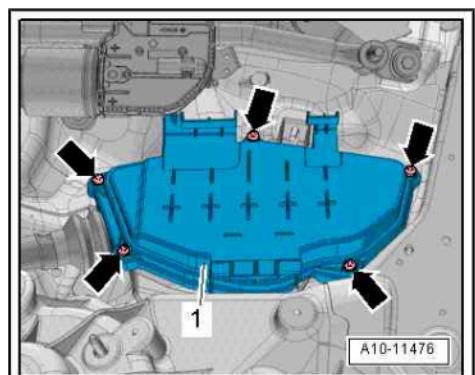
- Unscrew bolts -arrows- and pull filler neck -1- out of washer fluid reservoir and through opening in body to right side.



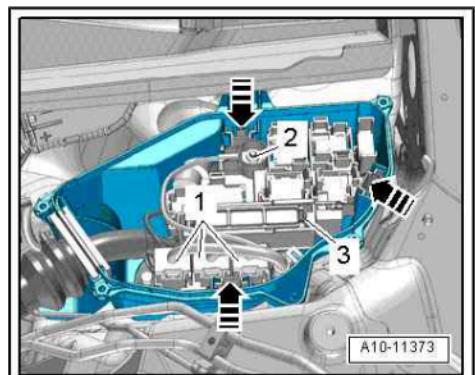
- Remove cap nut -2- and move earth wiring clear.
- Release fastener -arrow-, detach engine control unit - J623- -item 1- from bracket and swivel it to one side.



- Remove bolts -arrows- and detach cover -1- for electronics box in plenum chamber.

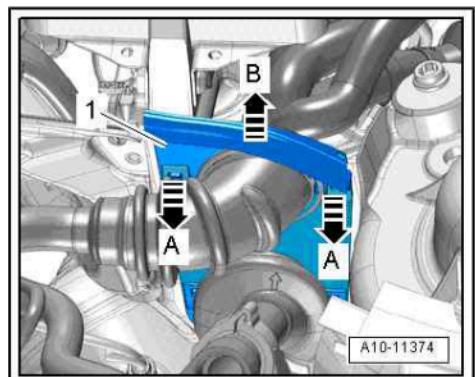


- Unplug electrical connectors -1- and unscrew nut -2- for electrical wiring.
- Release catches -arrows- and detach relay carrier with fuse holder -3-.
- Disengage engine wiring harness at electronics box in plenum chamber and move clear.



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- Release catches -arrows A- and lift off wiring protector -1- -arrow B-.
- Place wiring harness on engine and secure engine/motor control unit - J623- to prevent it from dropping.

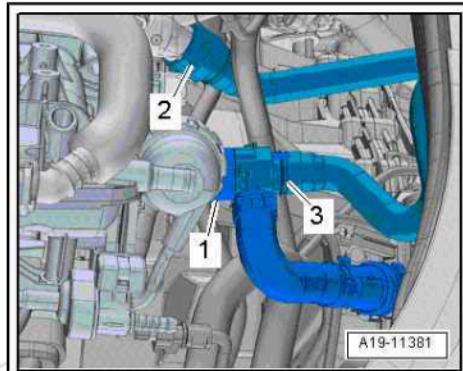


- Lift retaining clips -1, 2 and 3-, disconnect coolant hoses and guide relevant coolant hoses through plenum chamber partition panel.



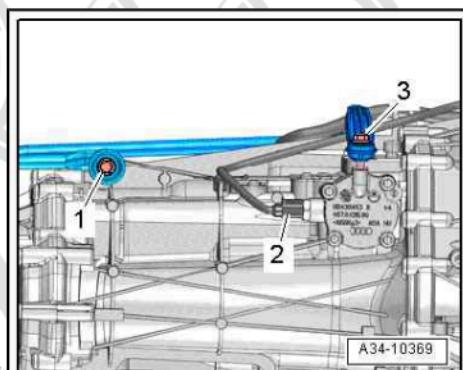
*Shown for vehicle with multitronic gearbox in illustration.*

- Remove plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber partition panel .



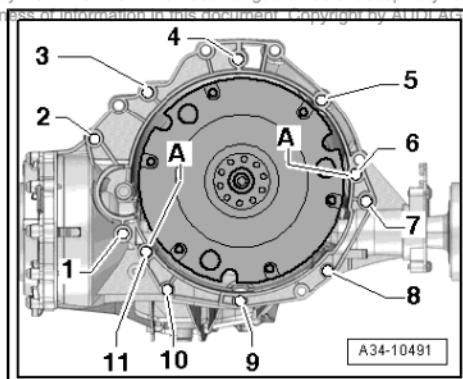
Vehicles with manual gearbox:

- Unplug electrical connector -2- at gear detection sensor - G604- and move electrical wiring clear.

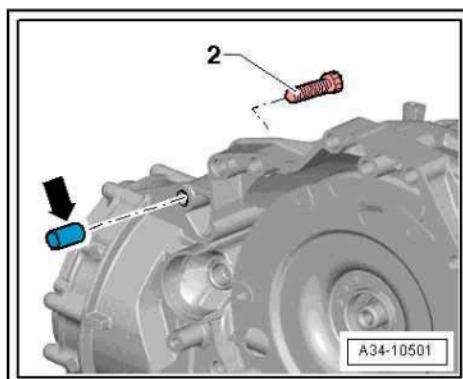


All vehicles (continued):

- Remove bolts -2 ... 6- securing gearbox to engine.
- Separate starter from gearbox and leave in position.



*Bolt -2- secures the starter to the gearbox and is provided with an additional spacer sleeve -arrow-.*

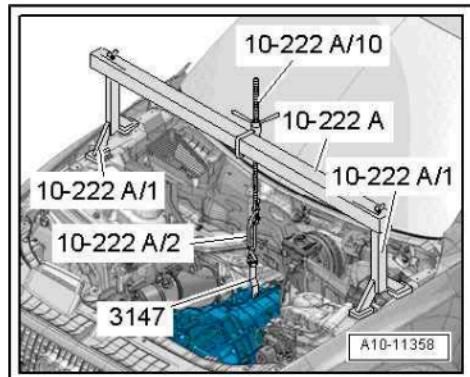


- Set up support bracket - 10 - 222 A- on wing mounting flanges (left and right) as illustrated.
- Attach gearbox support - 3147- to gearbox and to hook - 10 - 222 A /2- using hook - 10 - 222 A /10- .



*For illustration purposes, the installation position is shown with the engine removed.*

- Take up weight of gearbox with spindle of support bracket.

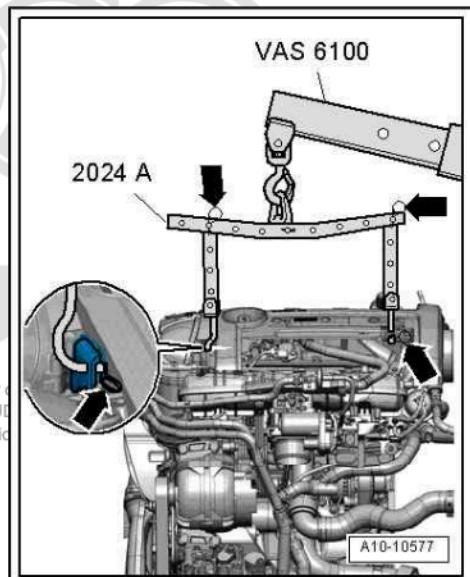


Risk of injury if engine drops when it is lifted.

Danger of trapping or crushing parts of the body.

- The support hooks and retaining pins on the lifting tackle must be secured with locking pins.
- The support hooks and retaining pins on the lifting tackle must be secured with locking pins -arrows-.
- Engage lifting tackle - 2024 A- on engine and workshop hoist - VAS 6100- .

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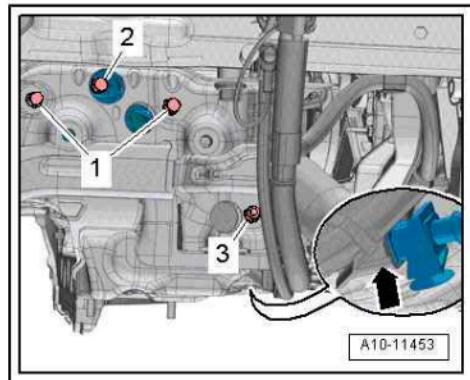
*To adjust to the centre of gravity of the assembly, the perforated rails of the support hooks must be positioned as shown.*

- Remove bolt -2- for engine mounting on both sides.
- Remove nut -3- and move bracket with electrical wiring clear.
- If fitted, remove electrical connectors -arrow- on both sides from bracket and unplug connectors.
- Raise engine until engine mountings are clear.
- Tighten spindle of support bracket - 10 - 222 A- further.



Risk of damage to lines/pipes, hoses and engine compartment when lifting engine out.

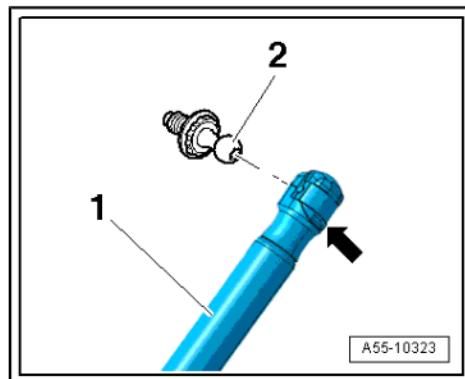
- Check that all connections between engine, gearbox, sub-frame and body have been detached.





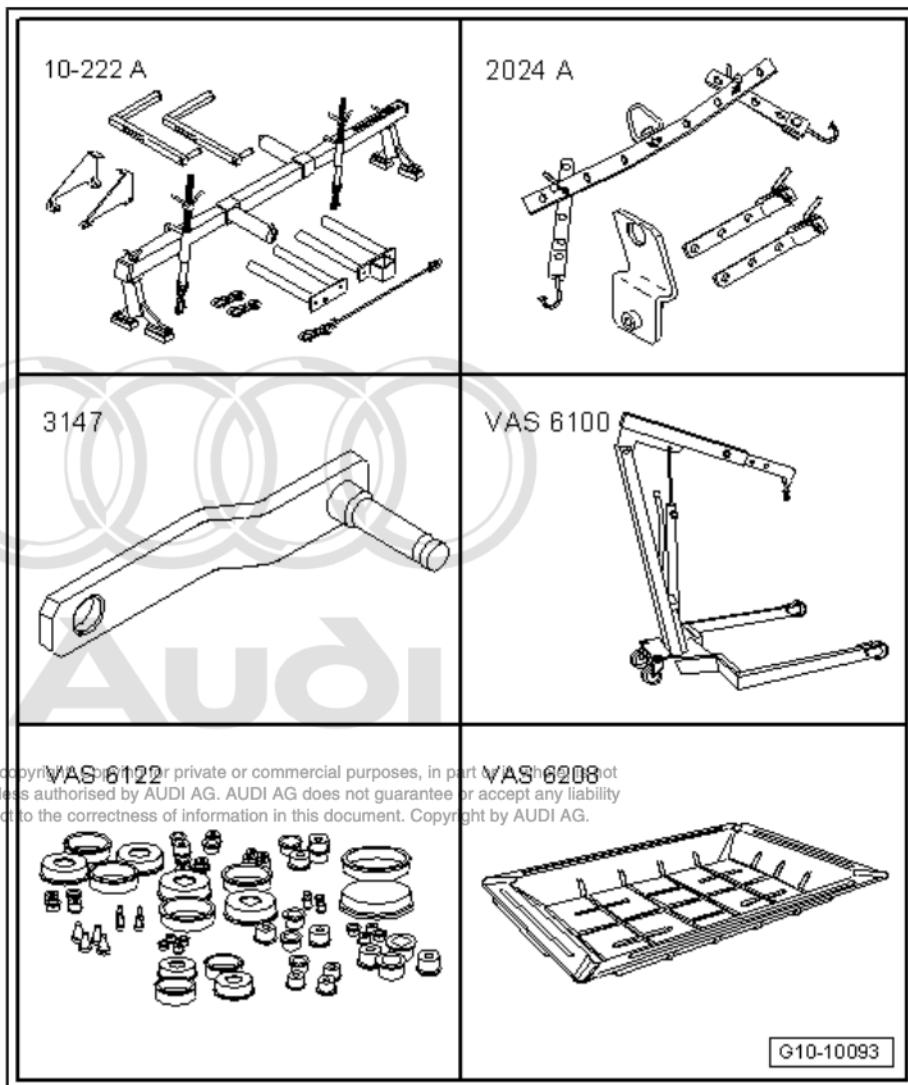
A second mechanic is required to carefully open bonnet as much as possible when lifting engine out.

- Use small screwdriver to slightly lift retaining clip -arrow- at both ends and detach gas strut -1- from ball stud -2- at top.
- Separate engine from gearbox and lift engine out of engine compartment.
- Press gas struts back onto ball studs.



### 1.1.2 Removing engine - vehicles with hybrid drive

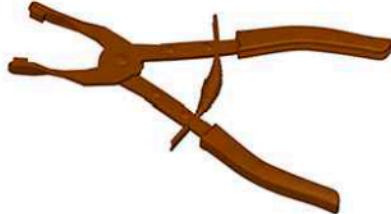
Special tools and workshop equipment required



- ◆ Support bracket - 10 - 222 A-
- ◆ Lifting tackle - 2024 A-
- ◆ Gearbox support - 3147-
- ◆ Workshop hoist - VAS 6100-
- ◆ Engine bung set - VAS 6122-

- ◆ Drip tray for workshop hoist - VAS 6208-
- ◆ Hose clip pliers - VAS 6362-

VAS 6362



W00-11227

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## Procedure

### Note

- ◆ *The engine is removed upwards without gearbox.*
- ◆ *Fit cable ties in the original positions when installing.*
- Disconnect earth wire from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .

### DANGER

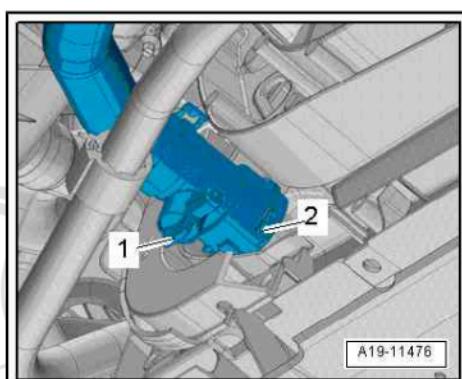
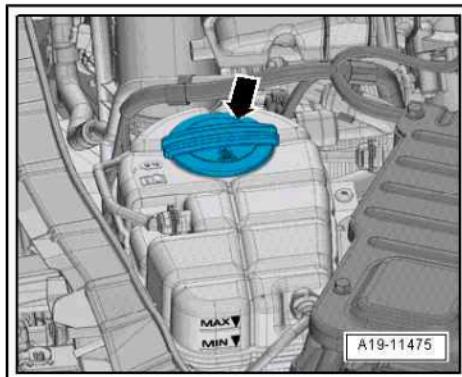
- High voltage can cause fatal injury.  
Danger of severe or fatal injuries from electric shock.
- The high-voltage system must be de-energised by a suitably qualified person.

- De-energise high-voltage system ⇒ Electric drive; Rep. gr. 93 ; De-energising high-voltage system .
- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

### CAUTION

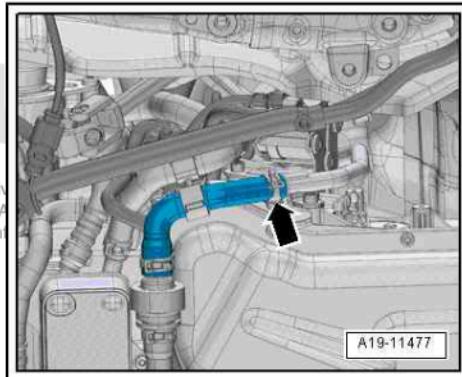
- The cooling system is under pressure when the engine is hot.  
Risk of scalding due to hot steam and hot coolant.
- Danger of scalding skin and other parts of the body.
- Put on protective gloves.
  - Put on safety goggles.
  - Cover filler cap on expansion tank with a cloth and open carefully to release pressure.

- Open filler cap -arrow- on coolant expansion tank.
- Remove wheel housing liners (front left and front right) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .
- Remove wheel spoilers (front) on both sides ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front) .
- Remove noise insulation panels ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Removing and installing subframe cross brace .
- Place drip tray for workshop hoist - VAS 6208- beneath engine.
- Open drain screw -1- at connection and drain off coolant; then detach connection -2- from radiator (lift retaining clip).
- Move coolant hose clear at longitudinal member.

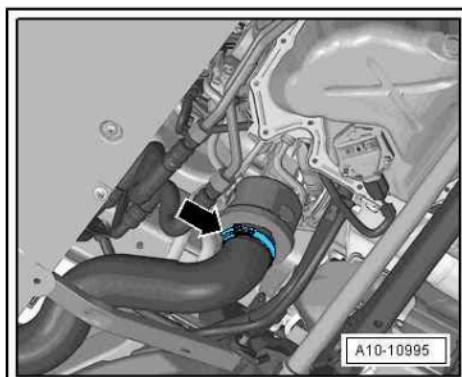


- Release hose clip -arrow- and detach coolant hose.

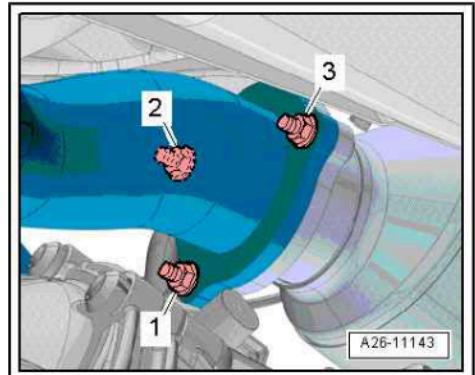
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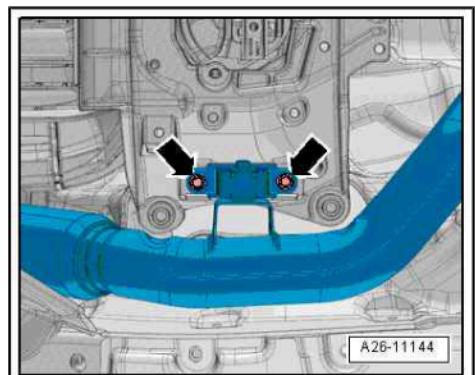
- Release hose clip -arrow-, disconnect air hose and press to one side.



- Remove nuts -1, 2, 3- for front silencer.



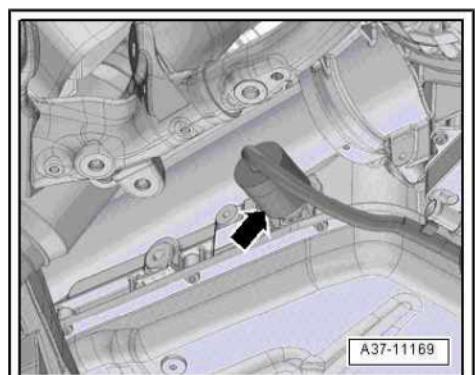
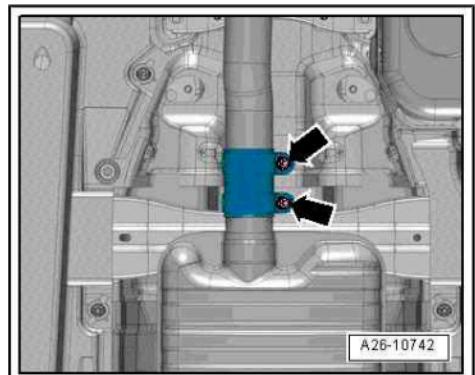
- Remove bolts -arrows- for front exhaust pipe.



 **NOTICE**

Risk of damage to flexible joint if handled incorrectly.

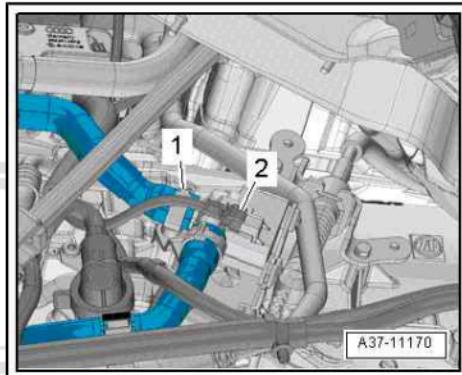
- Do not bend flexible joint more than 10°.
- Install flexible joint so that it is not under tension.
- Unfasten connections -arrows-, push clamp towards rear and detach front silencer.
- Unplug electrical connector -arrow- for auxiliary hydraulic pump 1 for gearbox oil - V475- from right side of gearbox and move electrical wiring clear.



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**Audi**

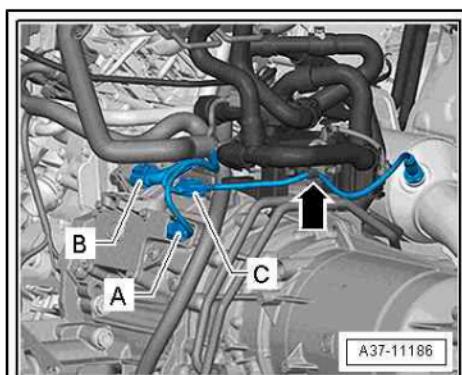
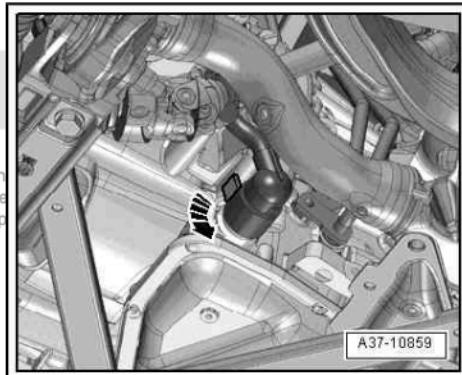
- Unplug electrical connector -2-.



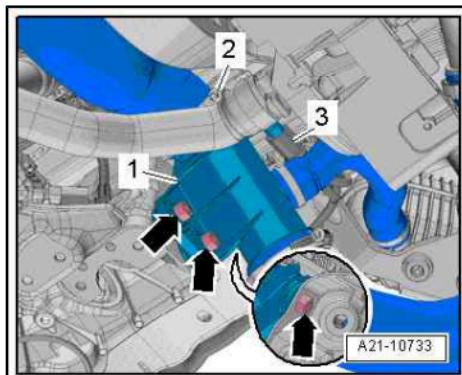
 **NOTICE**

Risk of irreparable damage due to electrostatic discharge.

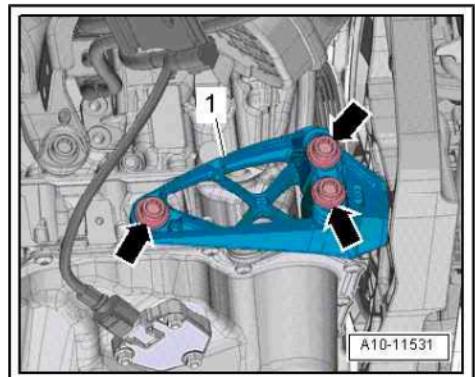
- Do NOT touch connector contacts with your hands.
- Touch the lifting platform or other earthed object to discharge static electricity. Permitted unless authorised by AUDI AG. AUDI AG does not guarantee with respect to the correctness of information in this document. Copying and/or further distribution is prohibited.
- Touch gearbox housing with your hand (without wearing gloves) to eliminate static charge.
- Turn retainer catch anti-clockwise -arrow- and unplug electrical connector at gearbox.
- Move electrical wiring harness clear at gearbox.
- Unplug connector -A- for high-voltage wiring harness for drive motor - PX2- and connector -B- at drive motor rotor position sender 1 - G713- on top left of gearbox.
- Unplug electrical connector -C- for Lambda probe after catalytic converter - G130- and detach from cable tie -arrow-.



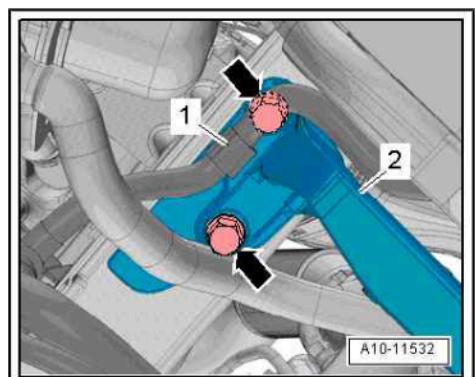
- Unplug electrical connector -3- on charge pressure sender - G31- and move electrical wiring clear.
- Release hose clip -2- and detach air hose.
- Remove bolts -arrows- and push connection -1- clear to one side.



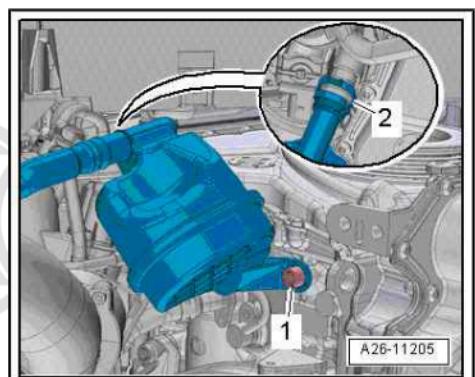
- Unscrew bolts -arrows- and remove torque reaction support -1-.



- Move electrical wiring harness -1- clear.
- Remove bolts -arrows- on both sides and detach cross member -2- for torque reaction support.

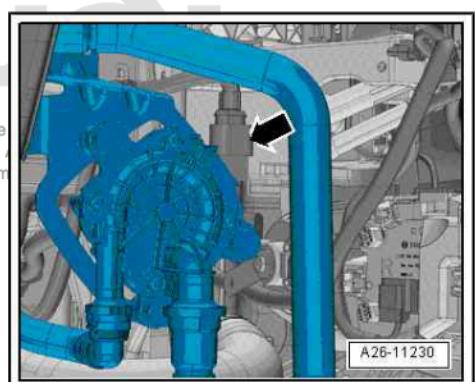


- Remove bolt -1-.
- Press release tabs -2- and detach resonator.



- Unplug electrical connector -arrow- at secondary air pump motor - V101- and move electrical wiring clear.

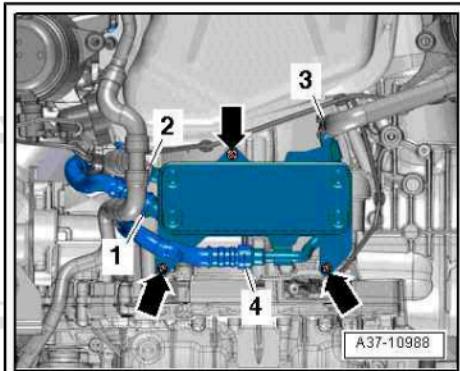
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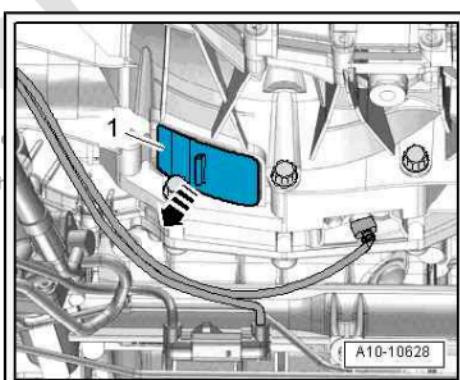
*Place a cloth underneath to catch escaping coolant.*

- Remove bolts -arrows- and push ATF cooler slightly to the side.



- Detach bottom cover -1- from gearbox -arrow-.

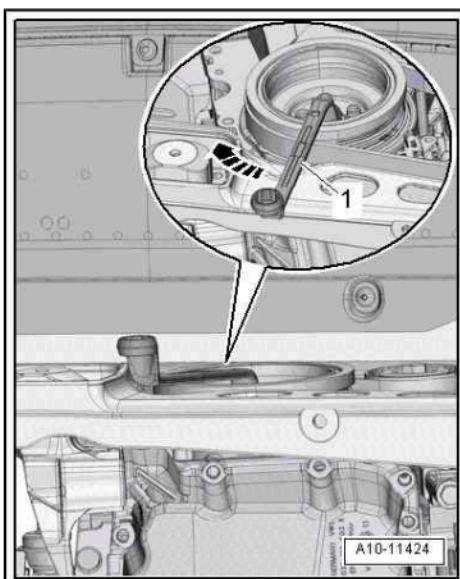
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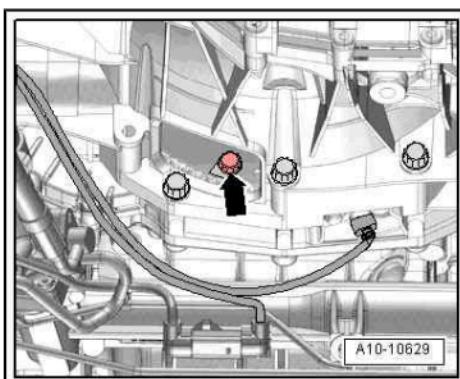
- Counterhold crankshaft on central bolt for vibration damper using angled ring spanner -1- when loosening bolts for electric drive motor - V141- .



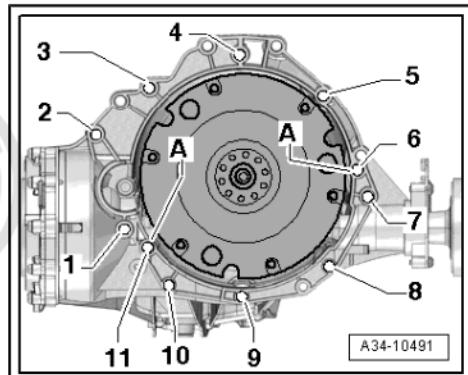
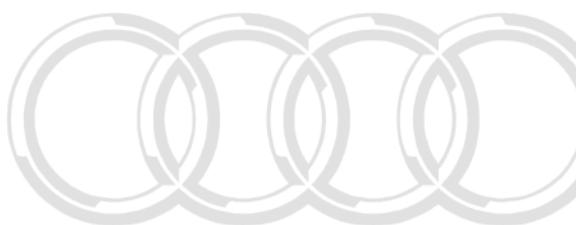
*When performing the next step, turn the crankshaft only in the normal direction of rotation -arrow-.*



- Remove 3 bolts -arrow- for electric drive motor - V141- on drive plate, turning crankshaft 120° in normal direction of rotation each time.



- Remove bolts -1, 6, 7, 8, 9, 10, 11- securing engine to gearbox.



A34-10491

- Take electrical connector -1- for radiator fan out of bracket and unplug connector (push retainer to the rear -arrow- and press down release catch).

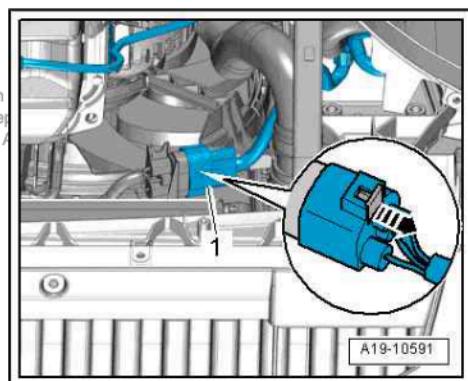
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- Move clear electrical wiring harness going to radiator fan control unit.

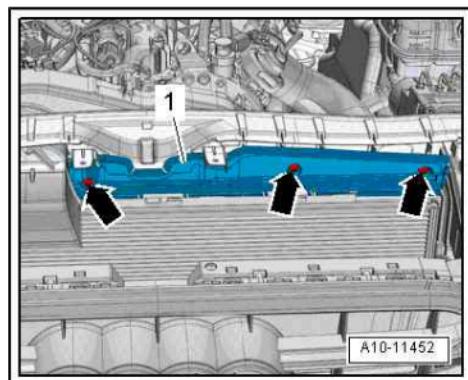
- Remove electrically driven air conditioner compressor from bracket ⇒ Heating, air conditioning; Rep. gr. 87 ; Air conditioner compressor; Detaching and attaching air conditioner compressor at bracket .

- Remove lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .

- Remove bolts -arrows- and detach air duct -1-.

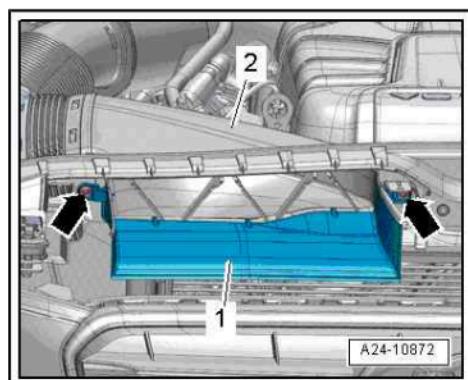


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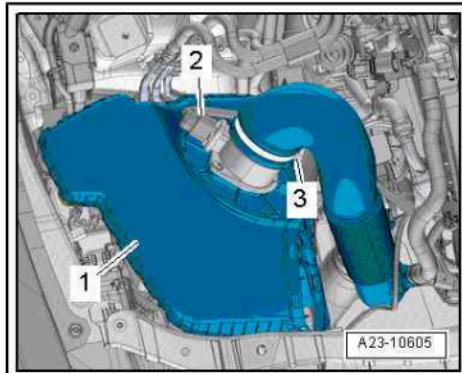
A10-11452

- Remove bolts -arrows- and detach air duct -2-.

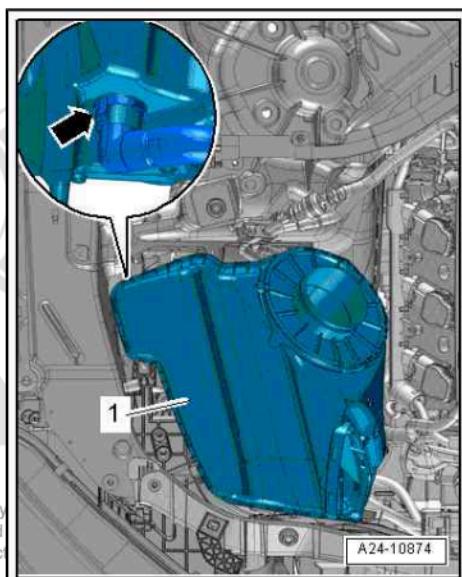


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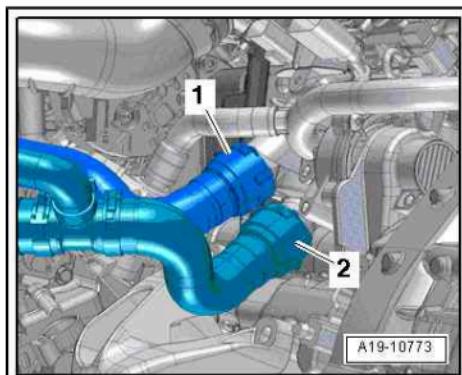
- Unplug electrical connector -2- and move wiring clear.
- Release hose clip -3- and detach air hose from air mass meter - G70- .



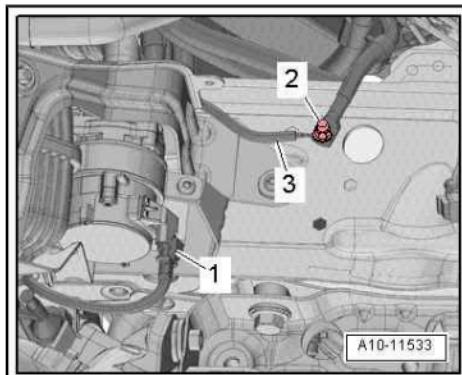
- Lift off air cleaner housing -1-.
- Press release tabs and disconnect secondary air hose -arrow-.



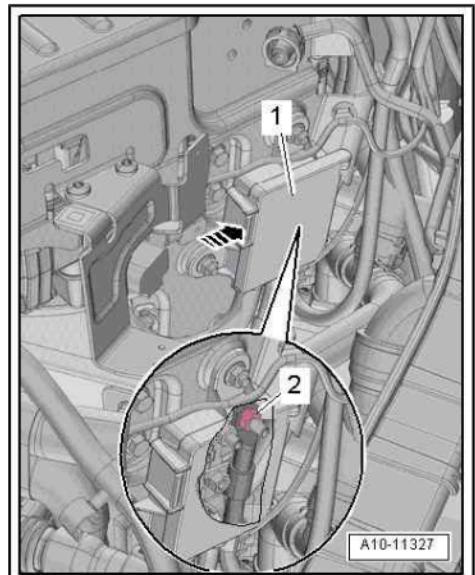
- Lift retaining clips -1 and 2-, detach coolant hoses and move them clear to one side.



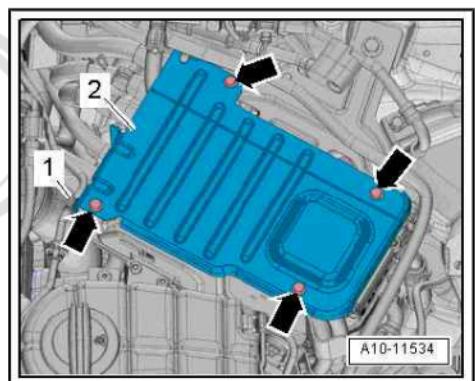
- Unplug electrical connector -1- from charge air cooling pump - V188- and move clear electrical wiring.
- Remove cap nut -2- and move earth wire -3- clear.



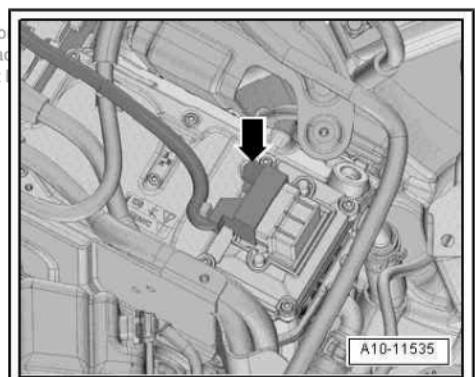
- Release catch -arrow- and open cover -1-.
- Remove nut -2- for electrical wiring.
- Move electrical wiring harness clear.



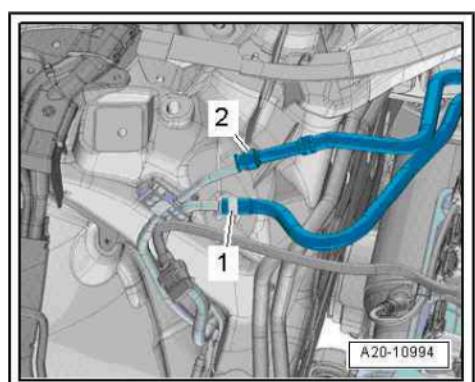
- Unscrew bolts -arrows- and remove cover -2-.



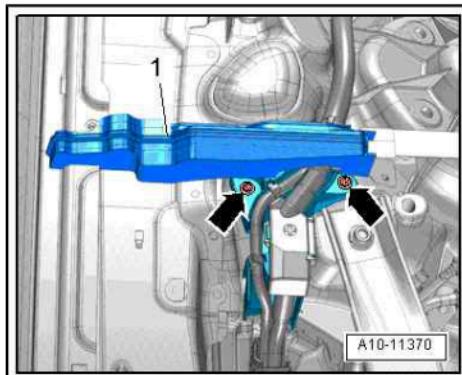
- Unplug electrical connector -arrow- and move wiring harness clear.



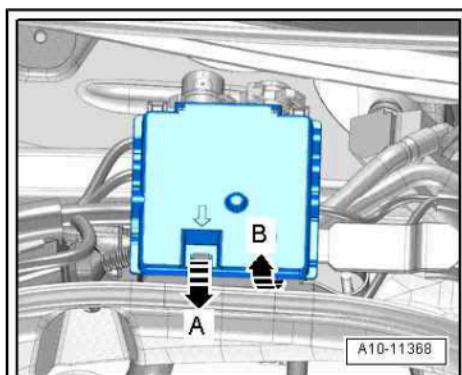
- Disconnect fuel line -2- ⇒ Fuel supply system; Rep. gr. 20 ;  
 Plug-in connectors; Disconnecting plug-in connectors .
- Release hose clip -1- and disconnect hose from activated charcoal filter.



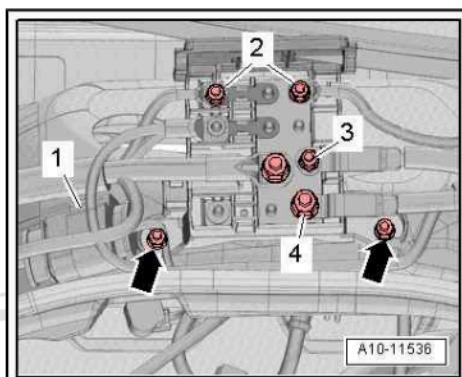
- Press foam wedge -1- to one side.
- Remove bolts -arrows-.
- Remove body brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Suspension strut, upper links; Removing and installing body brace .



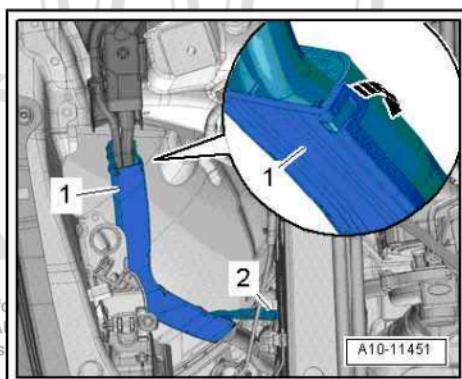
- Release retainer -arrow A- and open cover -arrow B-.



- Remove nuts -2, 3 and 4- and move electrical wiring clear.
- Detach electrical connector -1- from bracket and unplug.
- Remove nuts -arrows- and detach terminal 30 wiring junction - TV2- from plenum chamber partition panel.

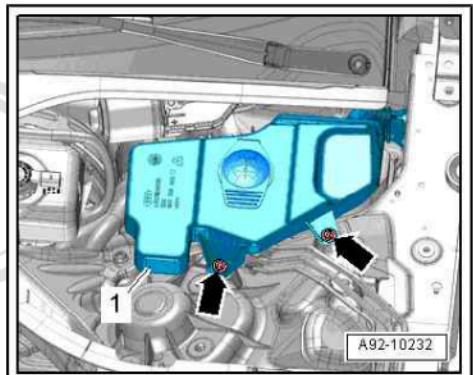


- Unscrew nut -2- on longitudinal member (right-side) and move earth cables clear.
- Release catch -arrow- to open wiring duct -1- and move electrical wiring harness clear.

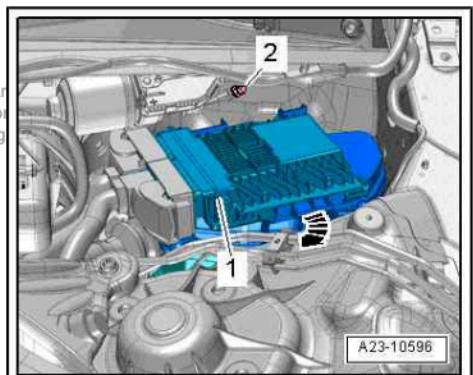


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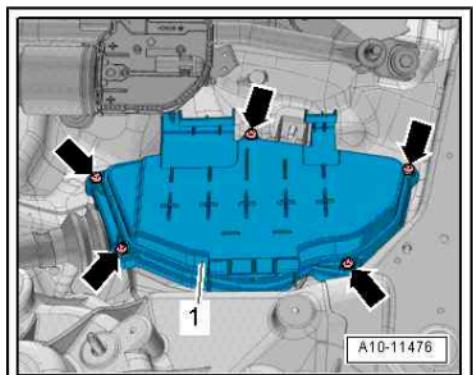
- Unscrew bolts -arrows- and pull filler neck -1- out of washer fluid reservoir and through opening in body to right side.



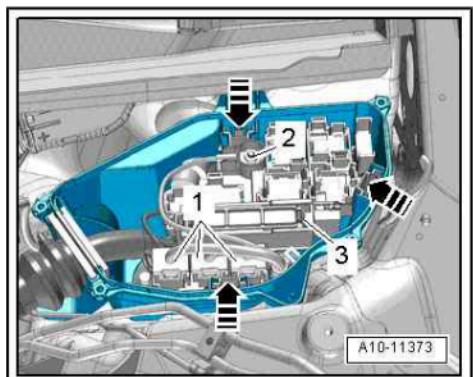
- Remove cap nut -2- and move earth wiring clear.
- Release fastener -arrow-, detach engine control unit - J623-  
**-item 1-** from bracket and swivel it to one side.  
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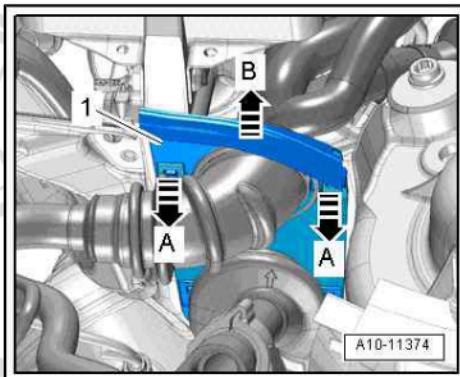
- Remove bolts -arrows- and detach cover -1- for electronics box in plenum chamber.



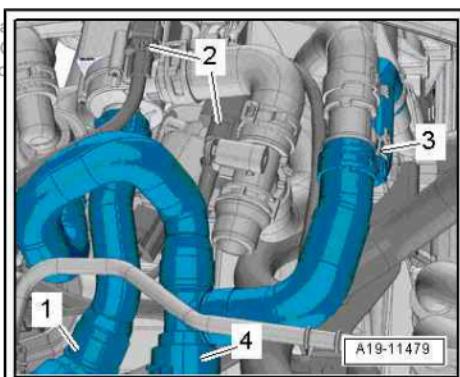
- Unplug electrical connectors -1- and unscrew nut -2- for electrical wiring.
- Release catches -arrows- and detach relay carrier with fuse holder -3-.
- Disengage engine wiring harness at electronics box in plenum chamber and move clear.



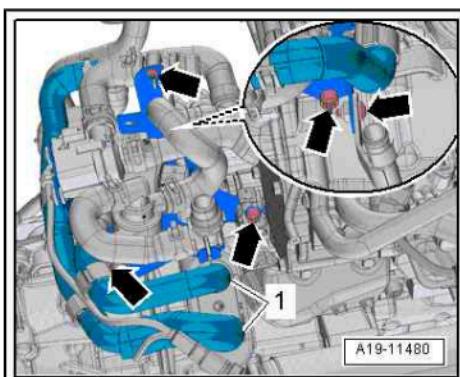
- Release catches -arrows A- and lift off wiring protector -1- -arrow B-.
- Move wiring harness clear and place on top of engine.
- Secure engine control unit - J623- to prevent it falling.
- Remove plenum chamber partition panel → General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber partition panel .



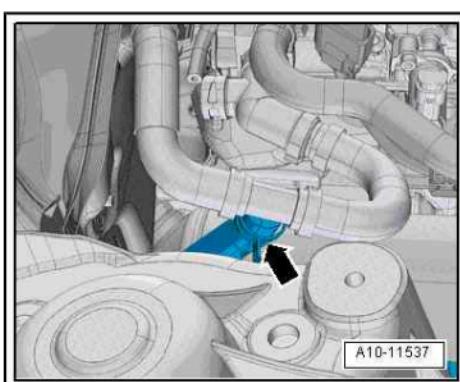
- Lift retaining clips -1, 4-, release hose clip -3- and detach coolant hoses.
- Unplug electrical connectors -2- and move wiring clear.



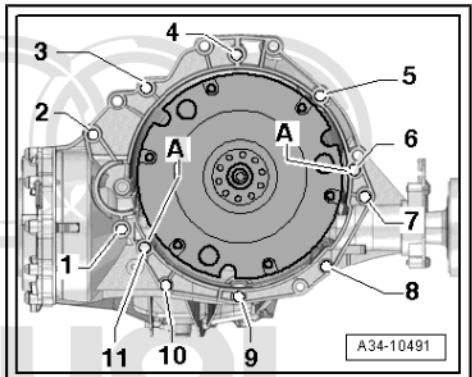
- Release hose clips -1- and detach coolant hoses.
- Unscrew bolts -arrows- and remove pump unit.



- Release hose clip -arrow- and disconnect vacuum hose from T-piece.



- Remove bolts -2 ... 5- securing gearbox to engine.



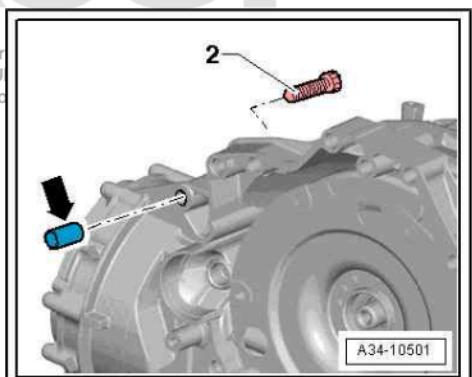
- Separate starter from gearbox and leave in position.



Note

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*Bolt -2- secures the starter to the gearbox and is provided with an additional spacer sleeve -arrow-.*

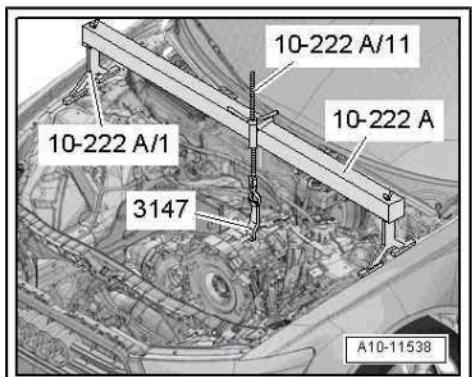


- Set up support bracket - 10 - 222 A- on wing mounting flanges (left and right) as illustrated.
- Attach gearbox support - 3147- to gearbox and to spindle - 10 - 222 A /11- .



Note

- ◆ *For illustration purposes, the installation position is shown with the engine removed.*
- ◆ *If necessary, modify lower part of gearbox support - 3147- slightly.*



- Take up weight of gearbox with spindle of support bracket.



### CAUTION

Risk of injury if engine drops when it is lifted.

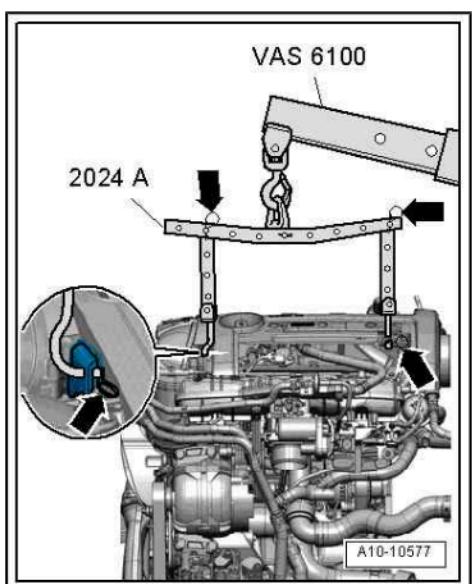
Danger of trapping or crushing parts of the body.

- The support hooks and retaining pins on the lifting tackle must be secured with locking pins.
- The support hooks and retaining pins on the lifting tackle must be secured with locking pins -arrows-.
- Engage lifting tackle - 2024 A- on engine and workshop hoist - VAS 6100- .



Note

*To adjust to the centre of gravity of the assembly, the perforated rails of the support hooks must be positioned as shown.*

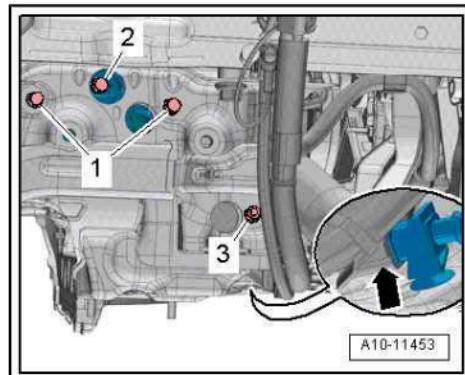


- Remove bolt -2- for engine mounting on both sides.
- Remove nut -3- and move bracket with electrical wiring clear.
- If fitted, remove electrical connectors -arrow- on both sides from bracket and unplug connectors.
- Raise engine until engine mountings are clear.
- Tighten spindle of support bracket - 10 - 222 A- further.

 **NOTICE**

Risk of damage to lines/pipes, hoses and engine compartment when lifting engine out.

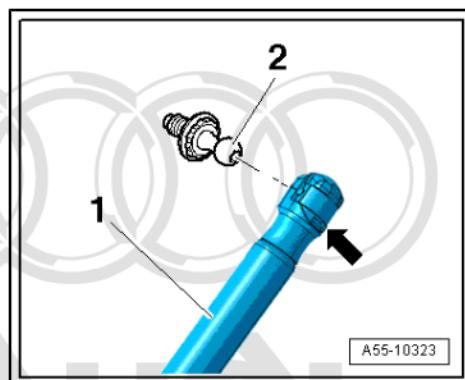
- Check that all connections between engine, gearbox, sub-frame and body have been detached.



 **Note**

*A second mechanic is required to carefully open bonnet as much as possible when lifting engine out.*

- Use small screwdriver to slightly lift retaining clip -arrow- at both ends and detach gas strut -1- from ball stud -2- at top.
- Separate engine from gearbox and lift engine out of engine compartment.
- Press gas struts back onto ball studs.



## 1.2 Securing engine to engine and gearbox support

All procedures are described in ⇒ *Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Removing and installing engine; Securing engine to engine and gearbox support .*

### 1.3 Installing engine

⇒ ["1.3.1 Installing engine - vehicles without hybrid drive", page 32](#)

⇒ ["1.3.2 Installing engine - vehicles with hybrid drive", page 35](#)

#### 1.3.1 Installing engine - vehicles without hybrid drive

Special tools and workshop equipment required

- ◆ All special tools specified in removal procedure

Procedure

 **Note**

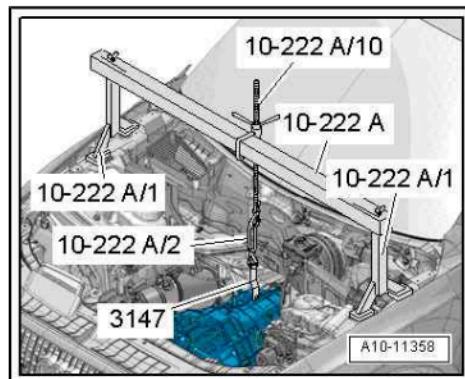
- ◆ Renew the bolts tightened with specified tightening angle.
- ◆ Renew self-locking nuts and bolts as well as seals, gaskets and O-rings.
- ◆ Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ *Electronic parts catalogue* .
- ◆ Fit all cable ties in the original positions when installing.

- Bring engine into position on gearbox, guiding starter, and secure by tightening bolts (accessible from above) ⇒ Gearbox; Rep. gr. 34 ; Removing and installing gearbox; Installing gearbox , or ⇒ Gearbox; Rep. gr. 37 ; Removing and installing gearbox; Installing gearbox; Installing gearbox .



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- Release spindle of support bracket - 10-222 A- .
- Lower workshop hoist and place engine/gearbox assembly onto engine mounting.
- Install engine mountings [⇒ page 43](#) .
- Detach workshop hoist - VAS 6100- and lifting tackle - 2024 A- .
- Screw in and tighten bolts for engine to gearbox ⇒ Gearbox; Rep. gr. 34 ; Removing and installing gearbox; Tightening torques for gearbox , or ⇒ Gearbox; Rep. gr. 37 ; Removing and installing gearbox; Tightening torques for gearbox .
- Install front silencer [⇒ page 181](#) .
- Align the exhaust system so it is free of stress [⇒ page 182](#) .
- Install air conditioner compressor ⇒ Heating, air conditioning; Rep. gr. 87 ; Air conditioner compressor; Detaching and attaching air conditioner compressor at bracket .
- Install poly V-belt ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing poly V-belt .
- Electrical connections and routing ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Install engine control unit [⇒ page 172](#) .
- Install electrical wiring, terminal 30 wiring junction 2 - TV22- and cover for electronics box in plenum chamber ⇒ Electrical system; Rep. gr. 97 ; Relay carriers, fuse carriers, electronics boxes; Overview of fitting locations - relay carriers, fuse carriers, electronics boxes .
- Install plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber partition panel .
- Install body brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Suspension strut, upper links; Exploded view - suspension strut, upper links .
- Install filler neck for washer fluid reservoir ⇒ Electrical system; Rep. gr. 92 ; Windscreen washer system; Exploded view - windscreen washer system .
- Observe steps required after re-connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .



 **NOTICE**

Risk of irreparable damage to control units because of excessive voltage.

- Do not use a battery charger to boost starting.
- Install air cleaner housing [⇒ page 152](#) .
- Install air hoses ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; [Exploded view](#) - hose connections for charge air system
- Check oil level ⇒ Maintenance ; Booklet 411 .

 Note

*Do not reuse coolant.*

- Fill up with coolant [⇒ page 83](#).
- Install subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Removing and installing subframe cross brace .
- Install wheel spoilers and wheel housing liners ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front) .
- After renewing engine, misfire adaptions must be reset. To do so, select [01 – Reset adaptions misfires] in [Guided Functions] mode of ⇒ Vehicle diagnostic tester.

#### Tightening torques



##### Note

- ◆ *Tightening torques apply only to lightly greased, oiled, phosphated or black-finished nuts and bolts.*
- ◆ *Additional lubricants such as engine or gear oil may be used, but do not use lubricants containing graphite.*
- ◆ *Do not use degreased parts.*
- ◆ *Tolerance for tightening torques: ± 15 %.*

#### Further tightening torques

Component	Nm
Bolts/nuts	
M6	9
M7	15
M8	20
M10	40
M12	65

- ◆ [⇒ “2.1 Exploded view - assembly mountings”, page 39](#)
- ◆ Engine to gearbox ⇒ Gearbox; Rep. gr. 34 ; Removing and installing gearbox; Tightening torques for gearbox , or ⇒ Gearbox; Rep. gr. 37 ; Removing and installing gearbox; Tightening torques for gearbox

### 1.3.2 Installing engine - vehicles with hybrid drive



#### Special tools and workshop equipment required

- ◆ All special tools specified in removal procedure

#### Procedure



##### Note

- ◆ *Renew the bolts tightened with specified tightening angle.*
- ◆ *Renew self-locking nuts and bolts as well as seals, gaskets and O-rings.*
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*
- ◆ *Fit all cable ties in the original positions when installing.*
- Bring engine into position on gearbox, guiding starter, and secure by tightening bolts (accessible from above) ⇒ Gearbox;

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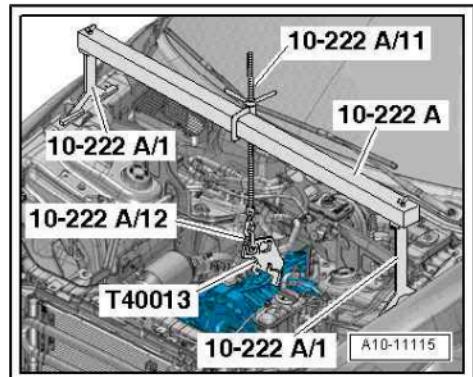
Rep. gr. 37 ; Removing and installing gearbox; Installing gear-box .



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- Release spindle of support bracket - 10-222 A- .
- Lower workshop hoist and place engine/gearbox assembly onto engine mounting.
- Install engine mountings [⇒ page 43](#) .
- Detach workshop hoist - VAS 6100- and lifting tackle - 2024 A- .
- Screw in and tighten bolts securing engine to gearbox ⇒ Gearbox; Rep. gr. 37 ; Removing and installing gearbox; Tightening torques for gearbox .
- Install front silencer [⇒ page 181](#) .
- Align the exhaust system so it is free of stress [⇒ page 182](#) .  
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- Install air conditioner compressor - **Heating, air conditioning**, Rep. gr. 87 ; Air conditioner compressor; Detaching and attaching air conditioner compressor at bracket .
- Electrical connections and routing ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Install engine control unit [⇒ page 172](#) .
- Install electrical wiring, terminal 30 wiring junction 2 - TV22- and cover for electronics box in plenum chamber ⇒ Electrical system; Rep. gr. 97 ; Relay carriers, fuse carriers, electronics boxes; Overview of fitting locations - relay carriers, fuse carriers, electronics boxes .
- Install plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber partition panel .
- Install body brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Suspension strut, upper links; Exploded view - suspension strut, upper links .
- Install filler neck for washer fluid reservoir ⇒ Electrical system; Rep. gr. 92 ; Windscreen washer system; Exploded view - windscreens washer system .



### **WARNING**

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- The high-voltage system must be re-energised by a suitably qualified person.

- Re-energise high-voltage system ⇒ Electric drive; Rep. gr. 93 ; Re-energising high-voltage system .
- Observe steps required after re-connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .

### **NOTICE**

Risk of irreparable damage to control units because of excessive voltage.

- Do not use a battery charger to boost starting.
- Install air cleaner housing [⇒ page 152](#) .
- Install air hoses ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system .
- Check oil level ⇒ Maintenance ; Booklet 411 .



### Note

*Do not reuse coolant.*

- Fill up with coolant [⇒ page 83](#).
- Install subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Removing and installing subframe cross brace .
- Install wheel spoilers and wheel housing liners ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front) .
- After renewing engine, misfire adaptions must be reset. To do so, select [\[01 – Reset adaptions misfires\]](#) in [\[Guided Functions\]](#) mode of ⇒ Vehicle diagnostic tester.

### Tightening torques



### Note

- ◆ *Tightening torques apply only to lightly greased, oiled, phosphated or black-finished nuts and bolts.*
- ◆ *Additional lubricants such as engine or gearbox oil may be used, but do not use lubricants containing graphite.*
- ◆ *Do not use de-greased parts.*
- ◆ *Tolerance for tightening torques: ± 15 %.*

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Further tightening torques respect to the correctness of information in this document. Copyright by AUDI AG.

Component	Nm	
Bolts/nuts	M6	9
	M7	15
	M8	20
	M10	40
	M12	65

- ◆ [⇒ “2.1 Exploded view - assembly mountings”, page 39](#)
- ◆ Engine to gearbox ⇒ Gearbox; Rep. gr. 34 ; Removing and installing gearbox; Tightening torques for gearbox , or ⇒ Gearbox; Rep. gr. 37 ; Removing and installing gearbox; Tightening torques for gearbox

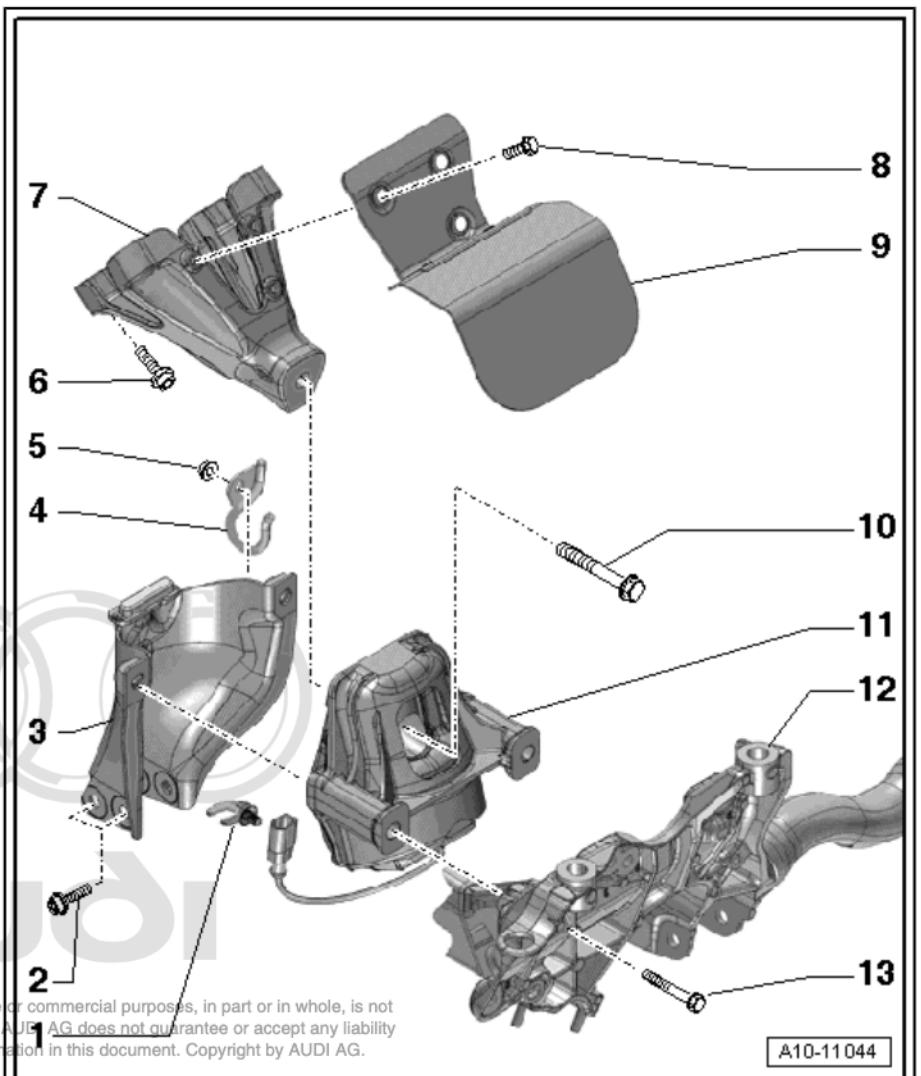
## 2 Assembly mountings

- ⇒ "2.1 Exploded view - assembly mountings", page 39
- ⇒ "2.2 Supporting engine in installation position", page 42
- ⇒ "2.3 Removing and installing engine mountings", page 43
- ⇒ "2.4 Removing and installing torque reaction support and cross member", page 44
- ⇒ "2.5 Removing and installing gearbox mounting", page 47

### 2.1 Exploded view - assembly mountings

Engine mounting

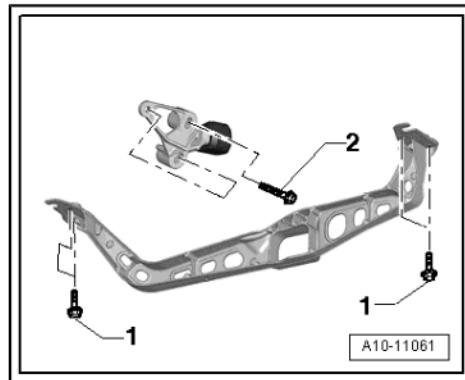
- 1 - Not fitted
- 2 - Bolt
  - 20 Nm
- 3 - Bracket
  - For engine mounting
  - Renew retaining plate if engine mounting is defective
  - Check retaining plate on opposite side; renew if necessary
- 4 - Not fitted
- 5 - Not fitted
- 6 - Bolt
  - 40 Nm
- 7 - Engine support
- 8 - Bolt
  - 10 Nm
- 9 - Heat shield
- 10 - Bolt
  - Renew
  - 90 Nm + turn 90° further
- 11 - Engine mounting
  - Depending on equipment and version, only with left electrohydraulic engine mounting sole-noid valve - N144 - on left side
  - Depending on equipment and version, additionally with right electrohydraulic engine mounting solenoid valve - N145 - on right side
  - Removing and installing ⇒ page 43
- 12 - Subframe
- 13 - Bolt
  - 55 Nm



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### Torque reaction support and cross member - tightening torques

- 1 - Bolt: 20 Nm
- 2 - Bolt: 50 Nm



### Gearbox mounting for manual gearbox 0B1

#### 1 - Nut

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

#### 2 - Bolt

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

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#### 3 - Bolt

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

#### 4 - Nut

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

#### 5 - Gearbox support

- Removing and installing [⇒ page 47](#)

#### 6 - Gearbox mounting

- Removing and installing [⇒ page 47](#)

#### 7 - Stop (bottom)

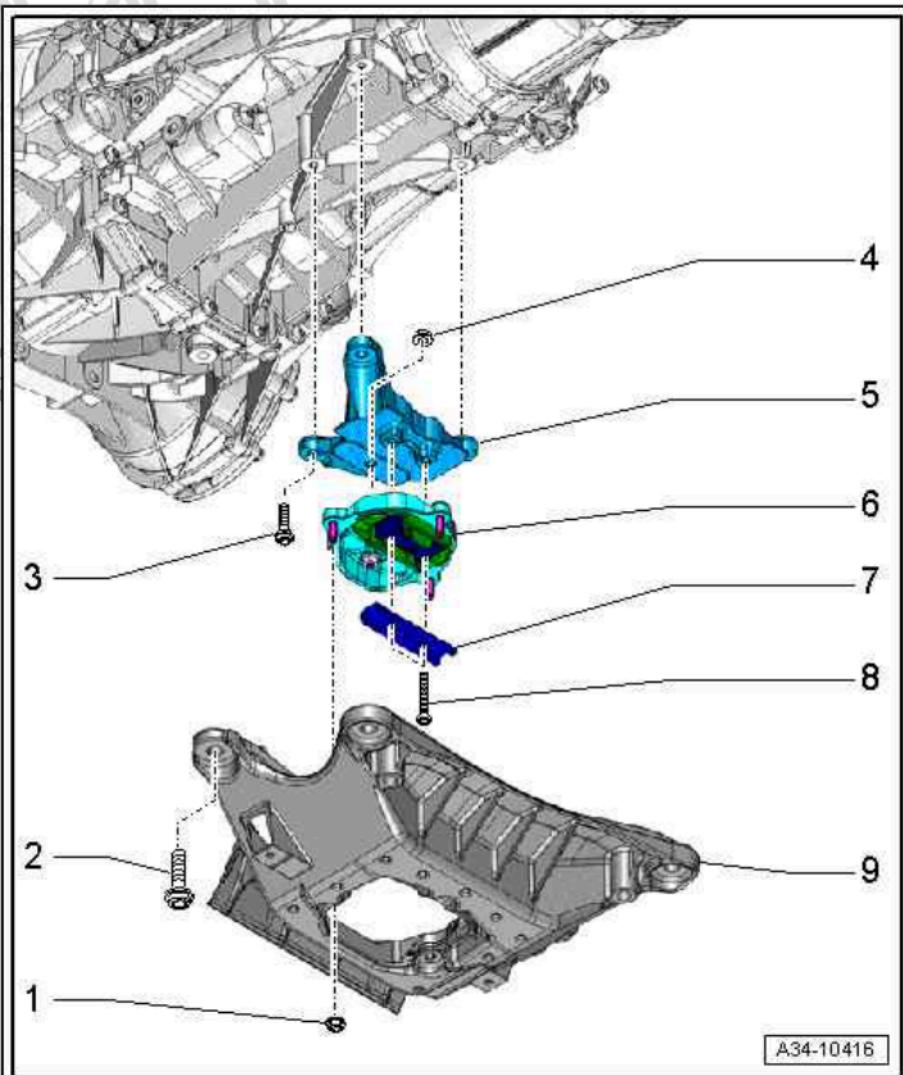
- For gearbox mounting

#### 8 - Bolt

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

#### 9 - Tunnel cross member

- Removing and installing ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings



### Gearbox mounting for multitronic gearbox 0AW

**1 - Nut**

- Tightening torque ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings

**2 - Bolt**

- Tightening torque ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings

**3 - Bolt**

- Tightening torque ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings

**4 - Nut**

- Tightening torque ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings

**5 - Gearbox support**

**6 - Gearbox mounting**

- Removing and installing ⇒ [page 48](#)

**7 - Stop (bottom)**

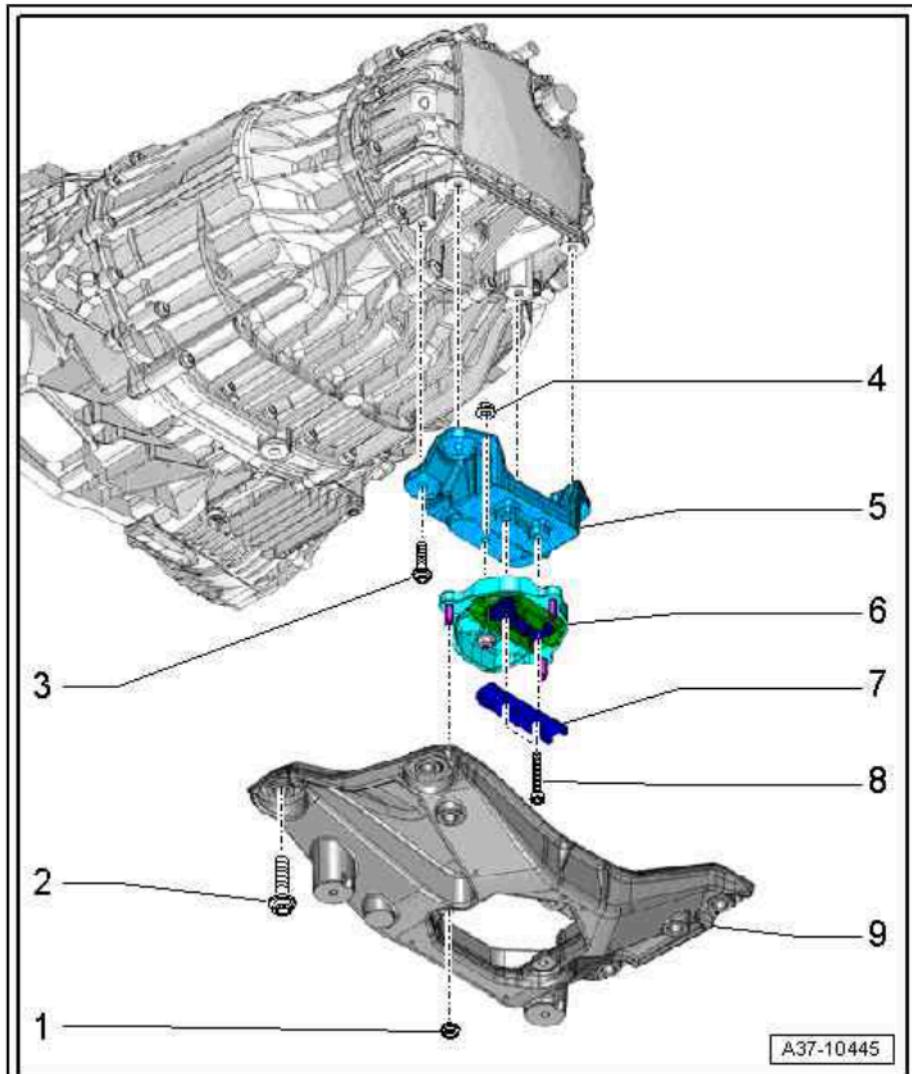
- For gearbox mounting

**8 - Bolt**

- Tightening torque ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings

**9 - Tunnel cross member**

- Removing and installing ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings



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Gearbox mounting for automatic gearbox 0BK/0BW



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1 - Bolt

- Tightening torque ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings

2 - Tunnel cross member

- Removing and installing ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings

3 - Stop plate

- For gearbox mounting

4 - Gearbox mounting

- Removing and installing ⇒ [page 49](#)

5 - Bolt

- Tightening torque ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings

6 - Nut

- Only remove if detaching gearbox mounting from gearbox support
- Tightening torque ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings

7 - Bolt

- 40 Nm

8 - Gearbox support

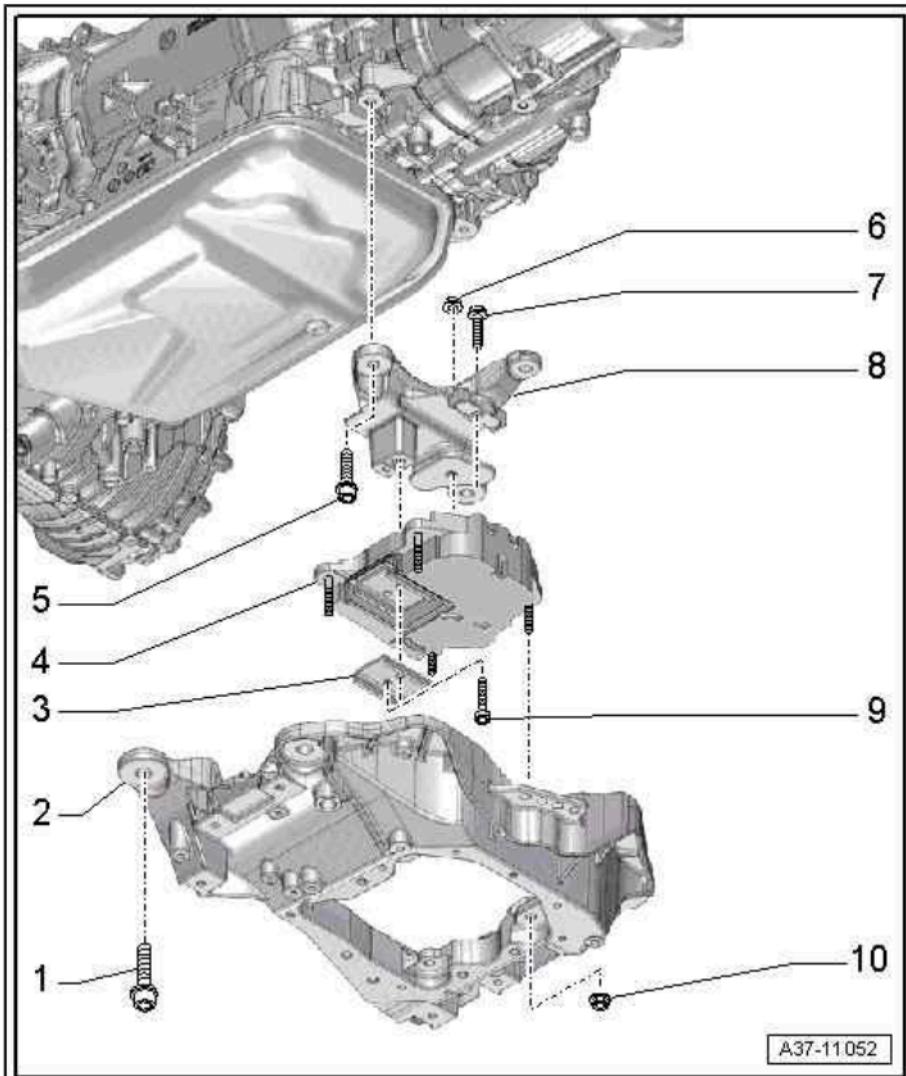
- Removing and installing ⇒ [page 48](#)

9 - Bolt

- Only remove if detaching gearbox mounting from gearbox support
- Tightening torque ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings

10 - Nut

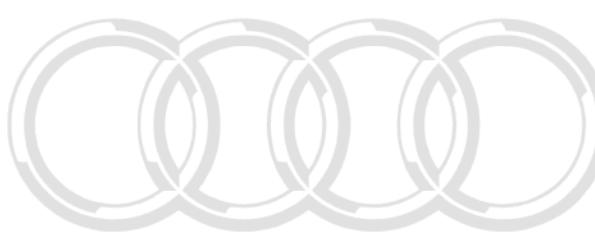
- Tightening torque ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings



## 2.2 Supporting engine in installation position

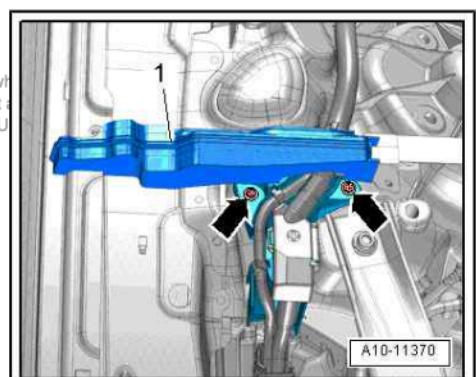
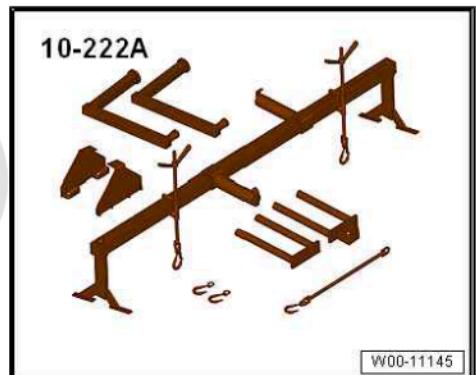
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- ◆ Support bracket - 10 - 222 A-

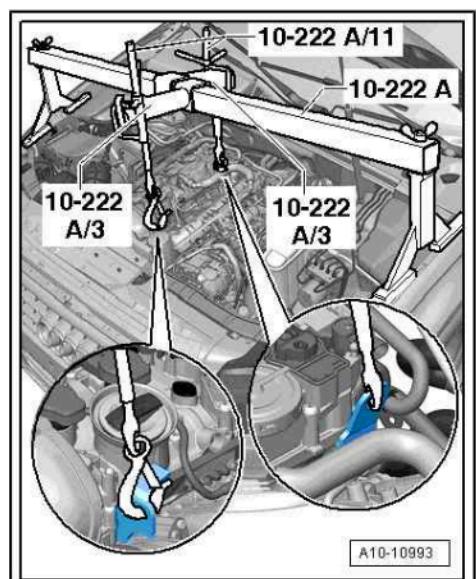


### Supporting

- Remove engine cover panel → Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI, Rep. gr. 10 Engine cover panel; Removing and installing engine cover panel in this document. Copyright by AUDI AG.
- Remove foam wedge -1- on both sides.



- Set up support bracket - 10 - 222 A- with adapters -10 - 222 A /3- on wing mounting flanges (left and right), as shown in illustration.
- Attach spindles -10 - 222 A /11- to engine lifting eyes.
- Partly take up weight of engine with spindles.



## 2.3 Removing and installing engine mountings



### Note

- ◆ The engine mountings cannot be renewed separately; the corresponding retaining plate must also be renewed.
- ◆ The following chapter describes the procedure for the engine mounting (left-side).

### Removing

- Support engine with support bracket [⇒ page 42](#).

- Remove front wheel (left-side) ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- Remove noise insulation (front) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove wheel spoiler (front left) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front) .
- Move clear and unplug electrical connector -3- on left electro-hydraulic engine mounting solenoid valve - N144- .
- Remove bolts -1, 4, 5- for engine mounting.
- Move retaining plate -2- for engine mounting clear to the side.
- Detach engine mounting.

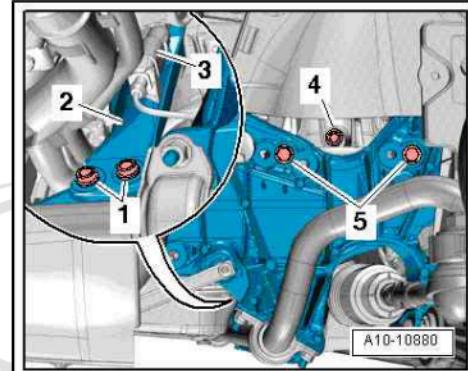
#### Installing

Installation is carried out in reverse order; note the following:



Note

*Renew the bolts tightened with specified tightening angle.*



#### Tightening torques

- ◆ ⇒ [“2.1 Exploded view - assembly mountings”, page 39](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front)
- ◆ ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

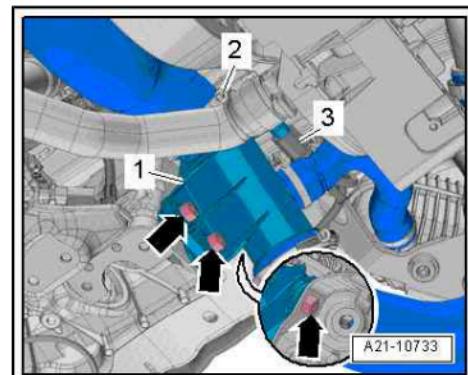
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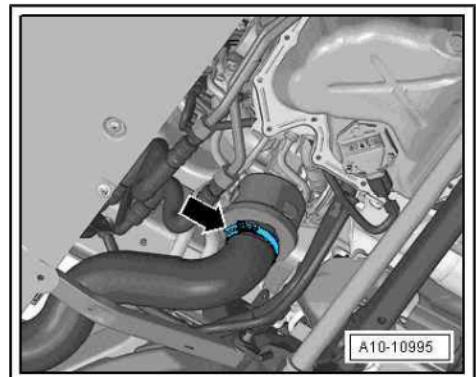
## 2.4 Removing and installing torque reaction support and cross member

#### Removing

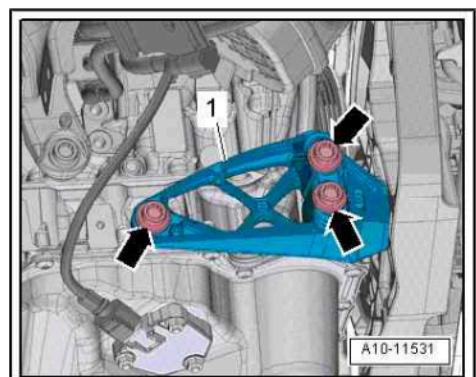
- Remove noise insulation (front) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove wheel spoiler (front left) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front) .
- Unplug electrical connector -3- and move wiring clear.
- Release hose clip -2- and detach air hose.
- Remove bolts -arrows- and push connection -1- clear to one side.



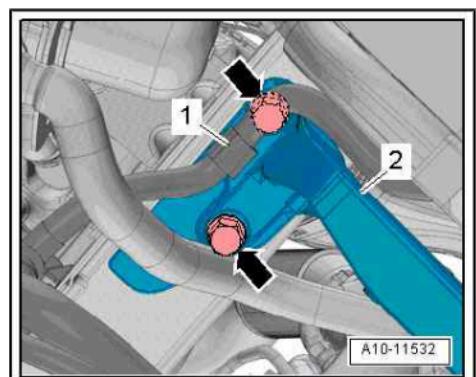
- Release hose clip -arrow-, disconnect air hose and press to one side.



- Unscrew bolts -arrows- and remove torque reaction support -1-.



- Move electrical wiring harness -1- clear.
- Remove bolts -arrows- on both sides and detach cross member -2- for torque reaction support.



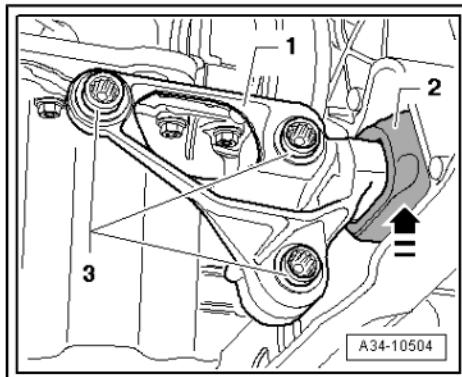
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## Installing

- Note installation position and marking of buffer stop.
- Push torque reaction support -1- upwards -arrow- until it makes contact with cross member.
- The buffer stop -2- must be free of stress and must lie against the cross member without play.
- Tighten bolts -3- in this position.

The remaining installation steps are carried out in the reverse sequence.



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*Secure all hose connections with the correct type of hose clips  
(same as original equipment) ⇒ Electronic parts catalogue .*

## Tightening torques

- ◆ ⇒ Fig. ““Torque reaction support and cross member - tightening torques””, page 40
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI;  
Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation;  
Exploded view - noise insulation
- ◆ Wheel spoiler ⇒ General body repairs, exterior; Rep. gr. 66 ;  
Wheel housing liners; Exploded view - wheel housing liner  
(front)

## 2.5 Removing and installing gearbox mounting

⇒ "2.5.1 Removing and installing gearbox support with gearbox mounting - manual gearbox 0B1", page 47

⇒ "2.5.2 Removing and installing gearbox mounting - manual gearbox 0B1", page 47

⇒ "2.5.3 Removing and installing gearbox mounting - multitronic gearbox 0AW", page 48

⇒ "2.5.4 Removing and installing gearbox support with gearbox mounting - automatic gearbox 0BK/0BW", page 48

⇒ "2.5.5 Removing and installing gearbox mounting - automatic gearbox 0BK/0BW", page 49

### 2.5.1 Removing and installing gearbox support with gearbox mounting - manual gearbox 0B1

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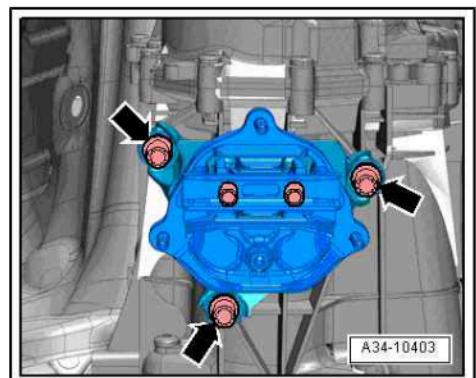
- Remove tunnel cross member ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings .
- Remove bolts -arrows- and detach gearbox support and gearbox mounting from gearbox.

#### Installing

Installation is carried out in reverse sequence.

#### Tightening torques

- ◆ ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings



### 2.5.2 Removing and installing gearbox mounting - manual gearbox 0B1

#### Removing

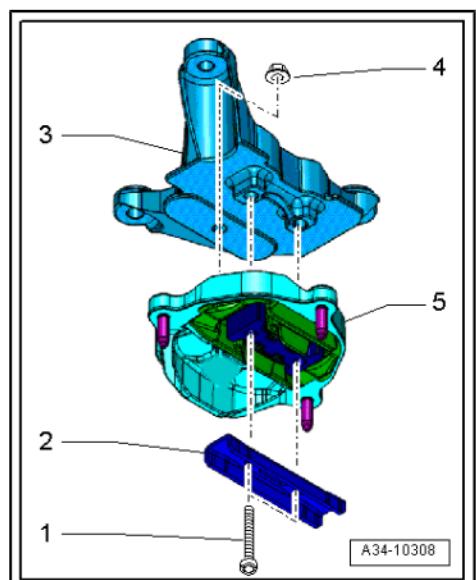
- Remove gearbox support with gearbox mounting ⇒ page 47 .
- Unscrew bolts -1- and detach stop (bottom) -2- for gearbox mounting.
- Remove nut -4- and detach gearbox mounting -5- from gearbox support -3-.

#### Installing

- Position gearbox support -3- on gearbox mounting -5- and hand-tighten nut -4-.
- Secure stop (bottom) -2- with bolts -1-.
- Tighten nut -4-.
- Install gearbox support with gearbox mounting ⇒ page 47 .

#### Tightening torques

- ◆ ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings



## 2.5.3 Removing and installing gearbox mounting - multitronic gearbox 0AW

### Removing

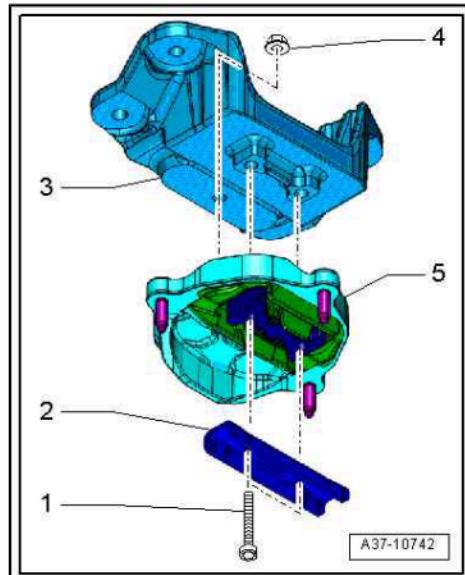
- Remove tunnel cross member ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings .
- Unscrew bolts -1- and detach stop (bottom) -2- for gearbox mounting.
- Remove nut -4- and detach gearbox mounting -5- from gearbox support -3-.

### Installing

Installation is carried out in reverse sequence.

### Tightening torques

- ◆ ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings



## 2.5.4 Removing and installing gearbox support with gearbox mounting - automatic gearbox 0BK/0BW

### Removing

- Remove tunnel cross member ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings .
- Remove bolts -arrows- and detach gearbox support and gearbox mounting from gearbox.

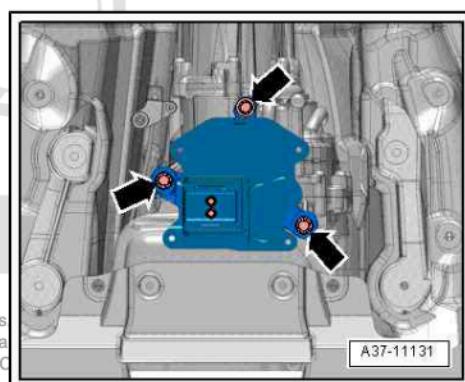
### Installing

Installation is carried out in reverse sequence.

### Tightening torques

- ◆ ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings

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## 2.5.5 Removing and installing gearbox mounting - automatic gearbox 0BK/0BW

### Removing

- Remove gearbox support with gearbox mounting [⇒ page 48](#) .
- Unscrew bolt -1- and detach stop -2- for gearbox mounting.
- Remove nut -4- and bolt -5- and detach gearbox mounting -6- from gearbox support -3-.

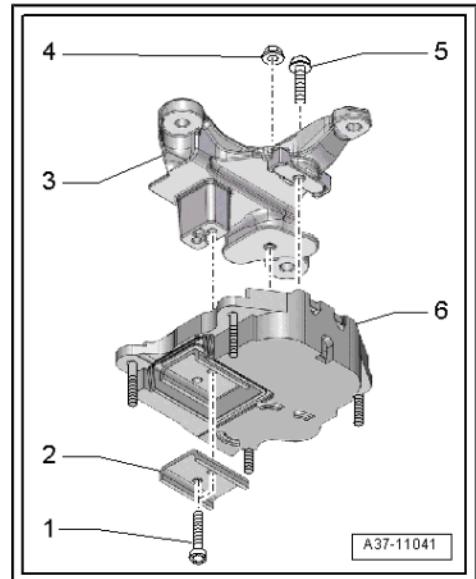
### Installing

Installation is carried out in reverse order; note the following:

- Position gearbox support -3- on gearbox mounting -6-.
- Hand-tighten nut -4- and bolt -5-.
- Tighten bolt -1- for stop -2-.
- Tighten nut -4- and bolt -5-.
- Install gearbox support with gearbox mounting [⇒ page 48](#) .

### Tightening torques

- ◆ ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view  
- assembly mountings

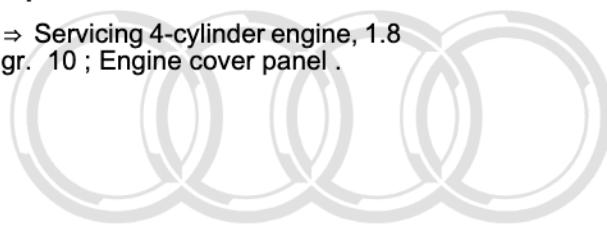


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### 3 Engine cover panel

All procedures can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel .



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## 13 – Crankshaft group

### 1 Cylinder block (pulley end)

- ⇒ "1.1 Exploded view - cylinder block (pulley end)", page 51
- ⇒ "1.2 Removing and installing poly V-belt", page 51
- ⇒ "1.3 Removing and installing tensioner for poly V-belt", page 51
- ⇒ "1.4 Removing and installing vibration damper", page 51
- ⇒ "1.5 Removing and installing bracket for ancillaries", page 51

#### 1.1 Exploded view - cylinder block (pulley end)

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All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Exploded view - cylinder block (pulley end) .

#### 1.2 Removing and installing poly V-belt

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing poly V-belt .

#### 1.3 Removing and installing tensioner for poly V-belt

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing poly V-belt tensioner .

#### 1.4 Removing and installing vibration damper

Removing

- Remove radiator fan control unit - J293- ⇒ [page 128](#) .

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing vibration damper .

Installing

Additional work:

- Install radiator fan control unit - J293- ⇒ [page 128](#) .

#### 1.5 Removing and installing bracket for ancillaries

⇒ "1.5.1 Removing and installing bracket for ancillaries - vehicles without hybrid drive", page 51

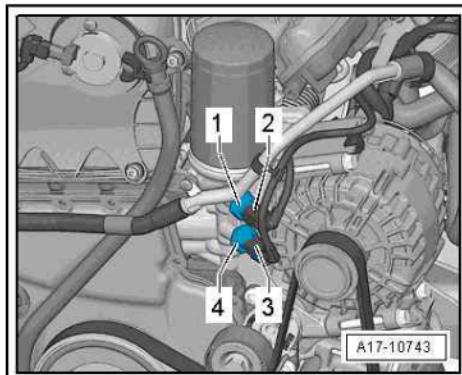
⇒ "1.5.2 Removing and installing bracket for ancillaries - vehicles with hybrid drive", page 53

##### 1.5.1 Removing and installing bracket for ancillaries - vehicles without hybrid drive

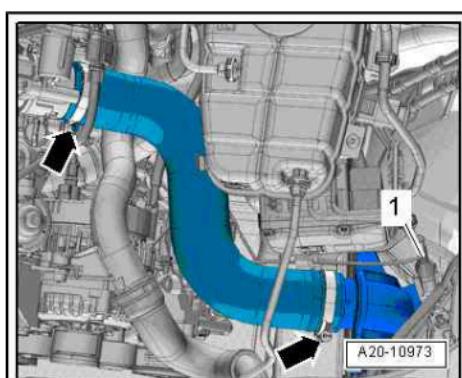
Removing

- Drain coolant ⇒ [page 83](#) .

- Unplug electrical connectors -2 and 3- from oil pressure switch - F22- and oil pressure switch for reduced oil pressure - F378- .



- Release hose clips -arrows- and detach air hose.
- Remove poly V-belt ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing poly V-belt .
- Remove alternator ⇒ Electrical system; Rep. gr. 27 ; Alternator; Removing and installing alternator .



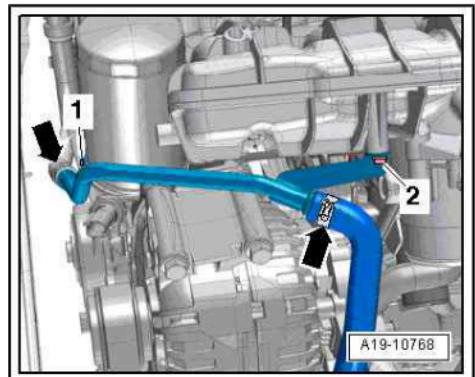
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- Remove bolts -1- and -2- and press coolant pipe (front) to side.
- Detach air conditioner compressor from bracket for ancillaries and tie up to left side ⇒ Heating, air conditioning; Rep. gr. 87 ; Air conditioner compressor; Detaching and attaching air conditioner compressor at bracket .

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing bracket for ancillaries .

Installing

Additional work:



### Note

*Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*

- Install air conditioner compressor ⇒ Heating, air conditioning, Rep. gr. 87 ; Air conditioner compressor; Detaching and attaching air conditioner compressor at bracket .
- Install alternator ⇒ Electrical system; Rep. gr. 27 ; Alternator; Removing and installing alternator .
- Install poly V-belt ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing poly V-belt .

### Note

*Do not reuse coolant.*

- Fill up with coolant ⇒ [page 83](#) .

Tightening torques

- ◆ ⇒ “3.1.1 Exploded view - coolant pipes (engine end)”, [page 108](#)
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system

## 1.5.2 Removing and installing bracket for ancillaries - vehicles with hybrid drive

Removing

### DANGER

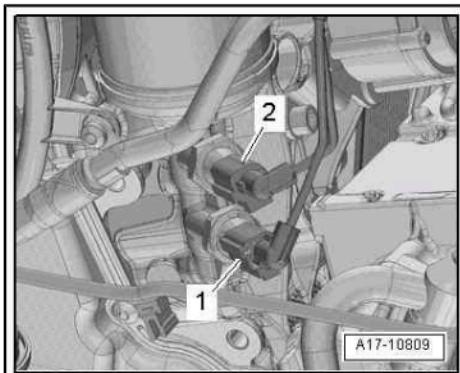
High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- The high-voltage system must be de-energised by a suitably qualified person.

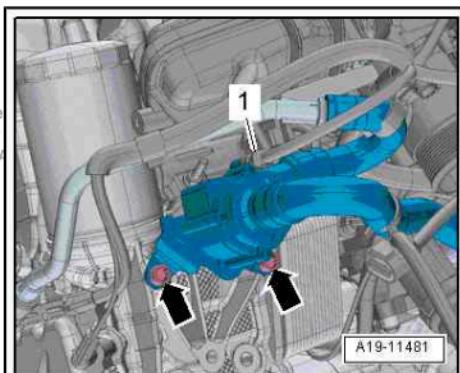
- De-energise high-voltage system ⇒ Electric drive; Rep. gr. 93 ; De-energising high-voltage system .
- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Drain coolant ⇒ [page 83](#) .

- Unplug electrical connectors -1- and -2- at oil pressure switch - F22- and oil pressure switch for reduced oil pressure - F378- .
- Remove electrical air conditioner compressor -V470- from bracket for ancillaries and tie up to left side ⇒ Heating, air conditioning; Rep. gr. 87 ; Air conditioner compressor; Detaching and attaching air conditioner compressor at bracket .



- Unplug electrical connector -1-.
- Remove bolts -arrows- and push coolant pump - V36- to one side.

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- Remove bolts -1- and -2- and press coolant pipe (front) to side.

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing bracket for ancillaries .

#### Installing

##### Additional work:

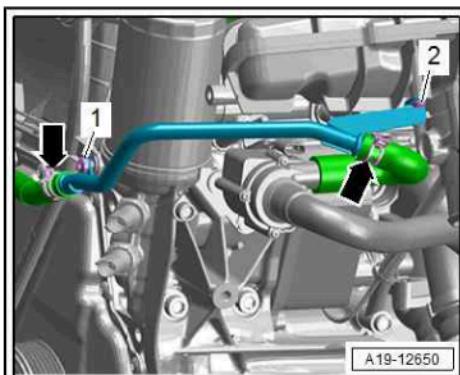
- Install electrical air conditioner compressor -V470- ⇒ Heating, air conditioning; Rep. gr. 87 ; Air conditioner compressor; Detaching and attaching air conditioner compressor at bracket .

#### WARNING

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- The high-voltage system must be re-energised by a suitably qualified person.



- Re-energise high-voltage system ⇒ Electric drive; Rep. gr. 93 ; Re-energising high-voltage system .

#### Tightening torques

- ◆ ⇒ ["2.2 Exploded view - electric coolant pump", page 90](#)
- ◆ ⇒ ["3.1.1 Exploded view - coolant pipes \(engine end\)", page 108](#)
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system

## 2 Cylinder block (gearbox end)

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (gearbox end) .



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### 3 Crankshaft

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Crankshaft .



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## 4 Balance shaft

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Balance shaft .



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## 5 Pistons and conrods

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Pistons and conrods .



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## 15 – Cylinder head, valve gear

### 1 Timing chain cover

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Timing chain cover .



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## 2 Chain drive

- ⇒ “2.1 Exploded view - camshaft timing chains”, page 60
- ⇒ “2.2 Exploded view - drive chain for balance shaft”, page 60
- ⇒ “2.3 Removing and installing bearing saddle”, page 60
- ⇒ “2.4 Removing camshaft timing chain from camshafts”, page 60
- ⇒ “2.5 Removing and installing camshaft timing chain”, page 60
- ⇒ “2.6 Removing and installing drive chain for balance shaft”, page 61
- ⇒ “2.7 Checking valve timing”, page 61

### 2.1 Exploded view - camshaft timing chains

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Chain drive; Exploded view - camshaft timing chains .

### 2.2 Exploded view - drive chain for balance shaft

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Chain drive; Exploded view - drive chain for balance shaft .

### 2.3 Removing and installing bearing saddle

All procedures can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Chain drive; Removing and installing bearing saddle .

### 2.4 Removing camshaft timing chain from camshafts

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Chain drive; Removing camshaft timing chain from camshafts .

### 2.5 Removing and installing camshaft timing chain

#### Removing

- Remove air cleaner housing ⇒ page 152 .
- Vehicles with hybrid drive: Remove torque reaction support and cross member ⇒ page 44 .

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Chain drive; Removing and installing camshaft timing chain .

#### Installing

##### Additional work:

- Vehicles with hybrid drive: Install torque reaction support and cross member ⇒ page 44 .
- Install air cleaner housing ⇒ page 152 .

## 2.6 Removing and installing drive chain for balance shaft

All procedures can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Chain drive; Removing and installing drive chain for balance shaft .

## 2.7 Checking valve timing

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Chain drive; Checking valve timing .



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### 3 Cylinder head

- ⇒ [“3.1 Exploded view - cylinder head”, page 62](#)
- ⇒ [“3.2 Removing and installing cylinder head”, page 62](#)
- ⇒ [“3.3 Checking compression”, page 66](#)

#### 3.1 Exploded view - cylinder head

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Cylinder head; Exploded view - cylinder head .

#### 3.2 Removing and installing cylinder head

- ⇒ [“3.2.1 Removing cylinder head - vehicles without hybrid drive”, page 62](#)

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- ⇒ [“3.2.2 Removing cylinder head - vehicles with hybrid drive”, page 64](#)

- ⇒ [“3.2.3 Installing cylinder head - all vehicles”, page 65](#)

##### 3.2.1 Removing cylinder head - vehicles without hybrid drive

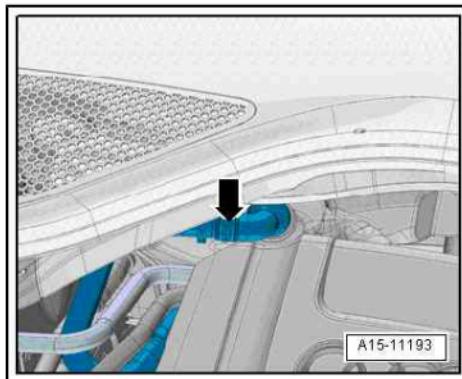
Removing

- Remove camshafts ⇒ [page 67](#) .

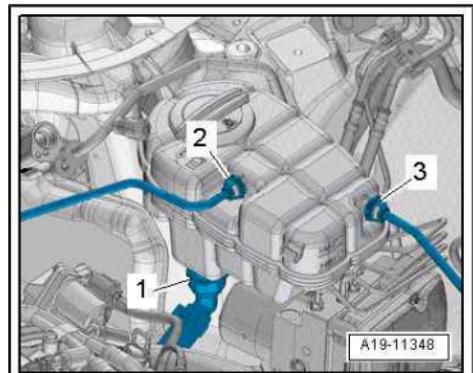
##### NOTICE

Risk of damage to valves and piston crowns if work has been performed on valve gear.

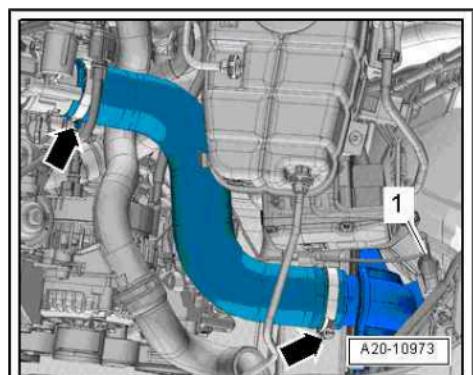
- Never turn crankshaft with camshafts removed.
- Drain coolant ⇒ [page 83](#) .
- Remove catalytic converter ⇒ [page 184](#) .
- Release hose clip -arrow- and detach vacuum connection.



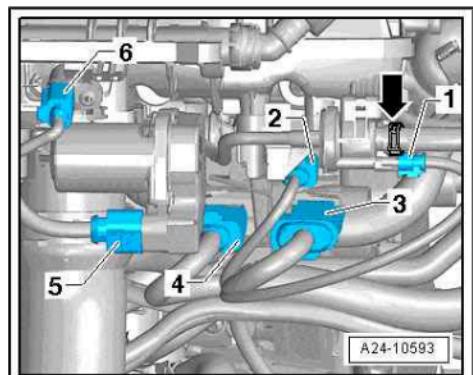
- Lift retaining clip -2- and disconnect coolant hose.
- Release hose clip -1- and disconnect hose from activated charcoal filter.



- Release hose clips -arrows- and detach air hose.



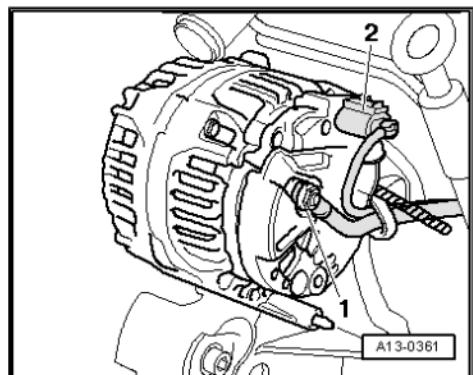
- Unplug the following electrical connectors:
- 2 - From knock sensor 1 - G61- (unplug and move clear).  
 3 - From intake manifold flap valve - N316- , fuel pressure sender - G247- and Hall sender - G40-  
 4 - From injectors  
 5 - From throttle valve module - J338-  
 6 - From intake air temperature sender - G42-



- Unplug electrical connector -2- and move wiring clear.

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Cylinder head; Removing and installing cylinder head .

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### 3.2.2 Removing cylinder head - vehicles with hybrid drive

#### Removing

##### DANGER

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- The high-voltage system must be de-energised by a suitably qualified person.

- De-energise high-voltage system ⇒ Electric drive; Rep. gr. 93 ; De-energising high-voltage system .
- Remove camshafts [⇒ page 67](#) .

##### NOTICE

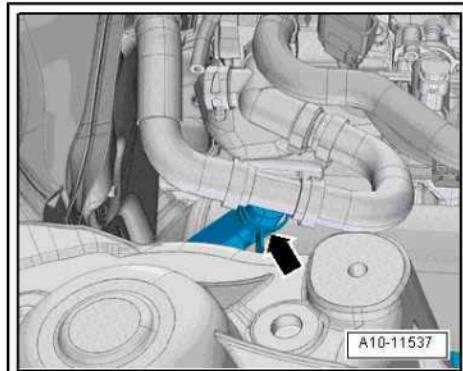
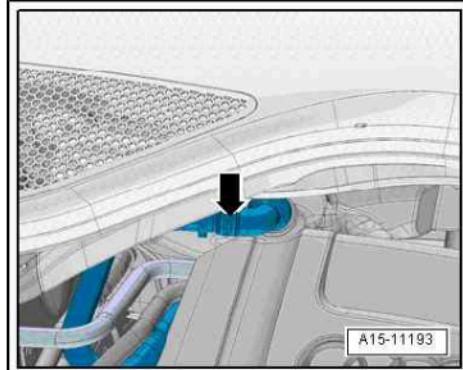
Risk of damage to valves and piston crowns if work has been performed on valve gear.

- Never turn crankshaft with camshafts removed.
- Drain coolant [⇒ page 83](#) .
- Remove catalytic converter [⇒ page 185](#) .
- Remove electrical air conditioner compressor -V470- from bracket for ancillaries and tie up to left side ⇒ Heating, air conditioning; Rep. gr. 87 ; Air conditioner compressor; Detaching and attaching air conditioner compressor at bracket .
- Release hose clip -arrow- and detach vacuum connection.



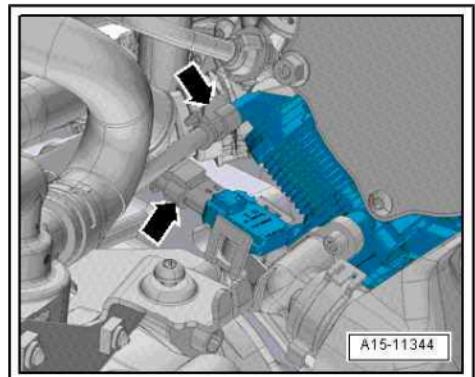
Audi

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- Release hose clip -arrow- and disconnect vacuum hose from T-piece.

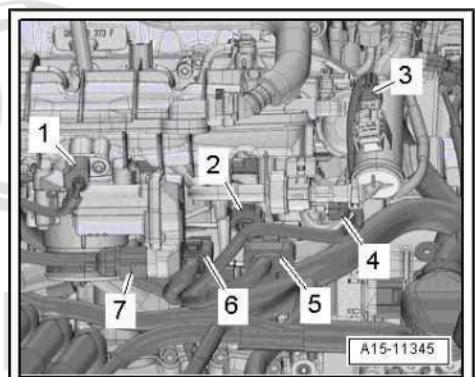
- Unplug electrical connectors -arrows-.



A15-11344

- Unplug the following electrical connectors:

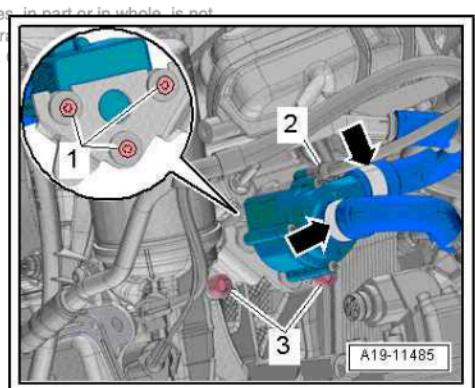
- 1 - From intake air temperature sender - G42-
- 2 - From knock sensor 1 - G61- (unplug and move clear).
- 3 - From sender 2 for secondary air pressure - G610-
- 4 - From activated charcoal filter solenoid valve 1 - N80-
- 5 - From intake manifold flap valve - N316- , fuel pressure sender - G247- and Hall sender - G40-
- 6 - From injectors
- 7 - From throttle valve module - J338-



A15-11345

- Unscrew bolts -3- and move coolant pump -V36- clear to one side.

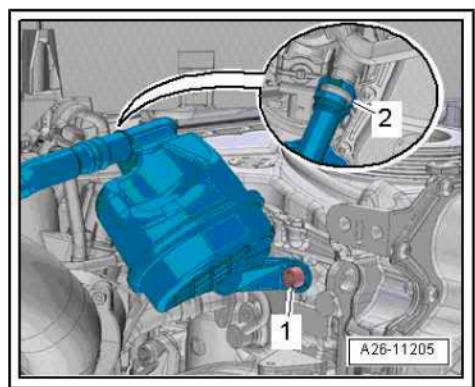
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A19-11485

- Remove bolt -1-.
- Press release tabs -2- and detach resonator.

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Cylinder head; Removing and installing cylinder head .



A26-11205

### 3.2.3 Installing cylinder head - all vehicles

Installing

Additional work:

Vehicles with hybrid drive:

- Install electrical air conditioner compressor -V470- ⇒ Heating, air conditioning; Rep. gr. 87 ; Air conditioner compressor; Detaching and attaching air conditioner compressor at bracket .
- Install coolant pump - V36-  
⇒ ["3.1.2 Exploded view - coolant pipes, vehicles with hybrid drive", page 110](#) .



**WARNING**

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- The high-voltage system must be re-energised by a suitably qualified person.

- Re-energise high-voltage system ⇒ Electric drive; Rep. gr. 93 ; Re-energising high-voltage system .

Continued for all vehicles:

- Install catalytic converter:
  - ◆ ⇒ ["2.2.1 Removing and installing catalytic converter - vehicles without hybrid drive", page 184](#)
  - ◆ ⇒ ["2.2.2 Removing and installing catalytic converter - vehicles with hybrid drive", page 185](#)
- Install front silencer ⇒ [page 181](#) .

Tightening torques

- ◆ ⇒ ["2.2 Exploded view - electric coolant pump", page 90](#)
- ◆ ⇒ ["3.1.1 Exploded view - coolant pipes \(engine end\)", page 108](#)
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system

### 3.3 Checking compression

All procedures can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Cylinder head; Checking compression .



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## 4 Valve gear

- ⇒ "4.1 Exploded view - valve gear", page 67
- ⇒ "4.2 Installing ball for slider", page 67
- ⇒ "4.3 Removing and installing actuators for camshaft adjustment", page 67
- ⇒ "4.4 Removing and installing camshaft", page 67
- ⇒ "4.5 Removing and installing camshaft control valve 1 N205 ", page 68
- ⇒ "4.6 Removing and installing valve stem oil seals", page 68

### 4.1 Exploded view - valve gear

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear .

### 4.2 Installing ball for slider

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Installing ball for slider .

### 4.3 Removing and installing actuators for camshaft adjustment

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Removing and installing actuators for camshaft adjustment .

### 4.4 Removing and installing camshaft

#### Removing

- Remove noise insulation (front) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation . Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Remove air cleaner housing ⇒ page 152 .

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Removing and installing camshaft .

#### Installing

##### Additional work:

- Install air cleaner housing ⇒ page 152 .
- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

#### Tightening torques

- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation



#### 4.5 Removing and installing camshaft control valve 1 - N205-

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Removing and installing camshaft control valve 1 - N205- .

#### 4.6 Removing and installing valve stem oil seals

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Removing and installing valve stem oil seals .

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## 5 Inlet and exhaust valves

All procedures are described in ⇒ Servicing 4-cylinder engine,  
1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Inlet and exhaust  
valves .



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## 17 – Lubrication

### 1 Sump/oil pump

- ⇒ “1.1 Exploded view - sump/oil pump”, page 70
- ⇒ “1.2 Engine oil”, page 70
- ⇒ “1.3 Removing and installing sump (bottom section)”, page 70
- ⇒ “1.4 Removing and installing oil pump”, page 70
- ⇒ “1.5 Removing and installing sump (top section)”, page 70
- ⇒ “1.6 Removing and installing oil level and oil temperature sender G266”, page 71

#### 1.1 Exploded view - sump/oil pump

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Sump/oil pump; Exploded view - sump/oil pump .

#### 1.2 Engine oil

- ◆ Refer to ⇒ Maintenance ; Booklet 411 for instructions on draining and filling up engine oil, checking oil level, removing and installing oil filter.
- ◆ Oil capacities, oil specifications and viscosity grades ⇒ Maintenance tables .

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#### 1.3 Removing and installing sump (bottom section)

##### Removing

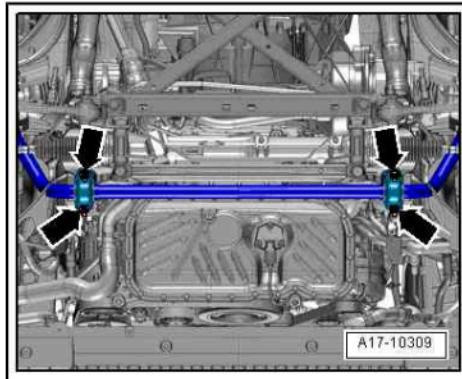
- Remove subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Removing and installing subframe cross brace .
- Remove nuts -arrows- and lower anti-roll bar.

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Sump/oil pump; Removing and installing sump (bottom section) .

##### Installing

##### Additional work:

- Install subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Removing and installing subframe cross brace .



#### 1.4 Removing and installing oil pump

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Sump/oil pump; Removing and installing oil pump .

#### 1.5 Removing and installing sump (top section)

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Sump/oil pump; Removing and installing sump (top section) .

## 1.6 Removing and installing oil level and oil temperature sender - G266-

All procedures are described in ⇒ Servicing 4-cylinder engine,  
1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Sump/oil pump; Re-  
moving and installing oil level and oil temperature sender - G266-.

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## 2 Engine oil cooler

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Engine oil cooler .



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### 3 Crankcase breather

⇒ "3.1 Exploded view - crankcase breather system", page 73

⇒ "3.2 Removing and installing oil separator", page 73

#### 3.1 Exploded view - crankcase breather system

All components are described in ⇒ Servicing 4-cylinder engine,

1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17; Crankcase breather;

Exploded view - crankcase breather system  
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#### 3.2 Removing and installing oil separator

⇒ "3.2.1 Removing and installing oil separator on cylinder block",  
page 73

⇒ "3.2.2 Removing and installing oil separator on cylinder head cover", page 74

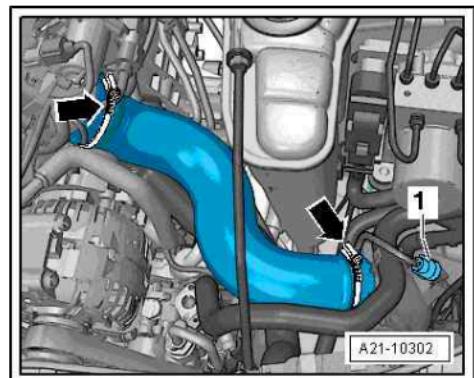
##### 3.2.1 Removing and installing oil separator on cylinder block

Removing

- Remove engine mounting (left-side) ⇒ page 43 .

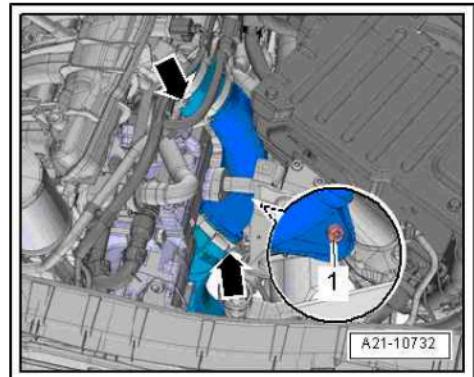
Vehicles without hybrid drive:

- Release hose clips -arrows- and detach air hose.



Vehicles with hybrid drive:

- Loosen hose clips -arrows-.
- Unscrew bolt -1- and detach air pipe.



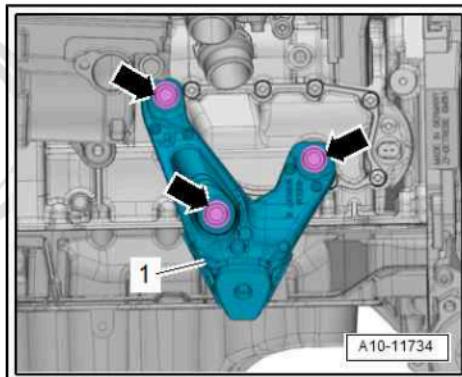
Continued for all vehicles:

- Remove bolts -arrows- and detach engine support (left-side)  
-1-

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Crankcase breather; Removing and installing oil separator .

Installing

Additional work:



**Secure all hose connections with the correct type of hose clips**

(same as original equipment) ⇒ **Electronic parts catalogue**  
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Tightening torques

- ◆ ⇒ **"2.1 Exploded view - assembly mountings", page 39**
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI;  
Rep. gr. 21 ; Charge air system; Exploded view - hose con-  
nections for charge air system

### 3.2.2 Removing and installing oil separator on cylinder head cover

All procedures are described in ⇒ Servicing 4-cylinder engine,  
1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Crankcase breather;  
Removing and installing oil separator .

## 4 Oil filter/oil pressure switches

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches .



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## 19 – Cooling

### 1 Cooling system/coolant

⇒ “1.1 Connection diagram - coolant hoses”, page 76

⇒ “1.2 Checking cooling system for leaks”, page 83

⇒ “1.3 Draining and filling cooling system”, page 83

#### 1.1 Connection diagram - coolant hoses

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⇒ “1.1.1 Connection diagram - coolant hoses, vehicles with manual gearbox and without auxiliary heater”, page 76

⇒ “1.1.2 Connection diagram - coolant hoses, vehicles with manual gearbox and auxiliary heater”, page 78

⇒ “1.1.3 Connection diagram - coolant hoses, vehicles with multitronic/automatic gearbox and without auxiliary heater”, page 79

⇒ “1.1.4 Connection diagram - coolant hoses, vehicles with multitronic/automatic gearbox and auxiliary heater”, page 80

⇒ “1.1.5 Connection diagram - coolant hoses, vehicles with hybrid drive”, page 82

##### 1.1.1 Connection diagram - coolant hoses, vehicles with manual gearbox and without auxiliary heater

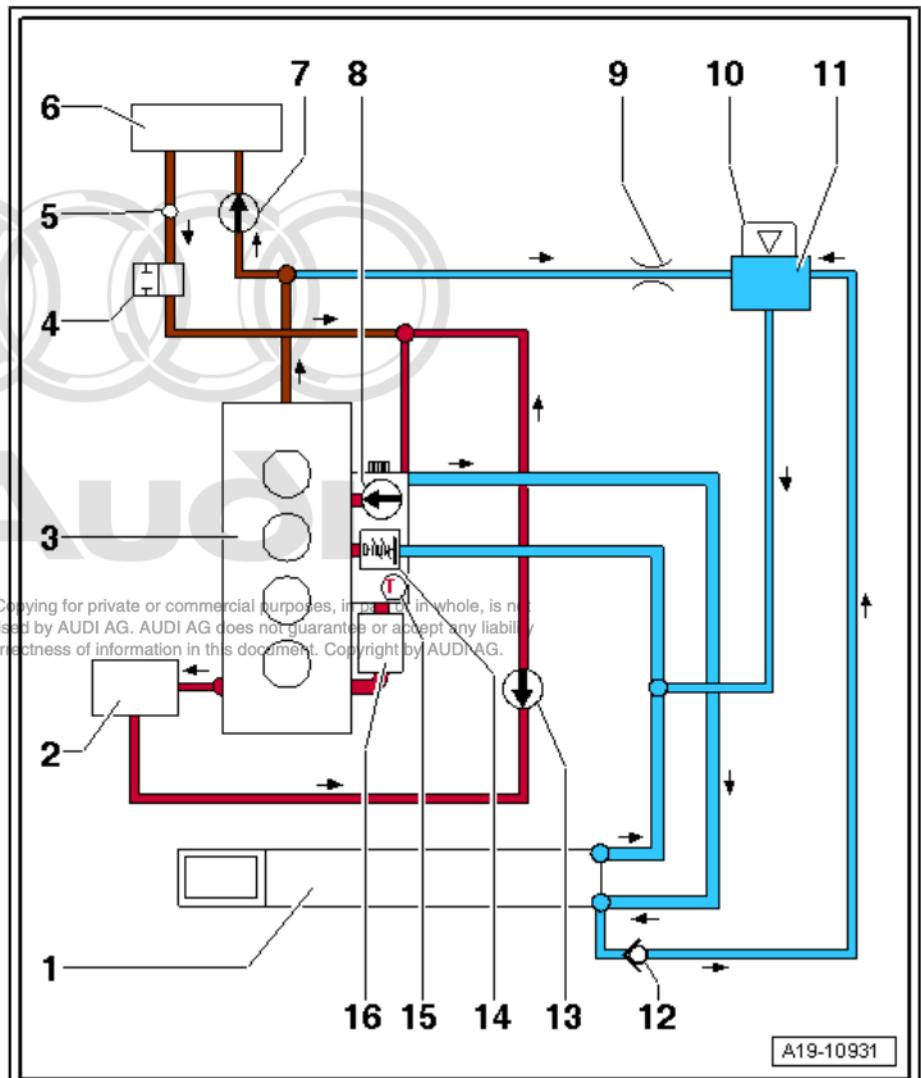


###### Note

- ◆ Blue = Large coolant circuit.
- ◆ Red = Small coolant circuit.
- ◆ Brown = Heating circuit
- ◆ Arrows show direction of coolant flow.

- 1 - Radiator
- 2 - Turbocharger
- 3 - Cylinder head/cylinder block
- 4 - Coolant shut-off valve
  - Activated by Climatronic coolant shut-off valve - N422- (negative pressure)
- 5 - Bleeder hole
- 6 - Heat exchanger for heater
- 7 - Coolant circulation pump - V50-
  - Only installed on vehicles with start/stop system
- 8 - Coolant pump
 

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- 9 - Restrictor
- 10 - Filler cap for expansion tank
- 11 - Coolant expansion tank
- 12 - Non-return valve
- 13 - Continued coolant circulation pump - V51-
  - Only fitted on vehicles equipped for hot climates
- 14 - Thermostat
- 15 - Coolant temperature sender - G62-
- 16 - Engine oil cooler



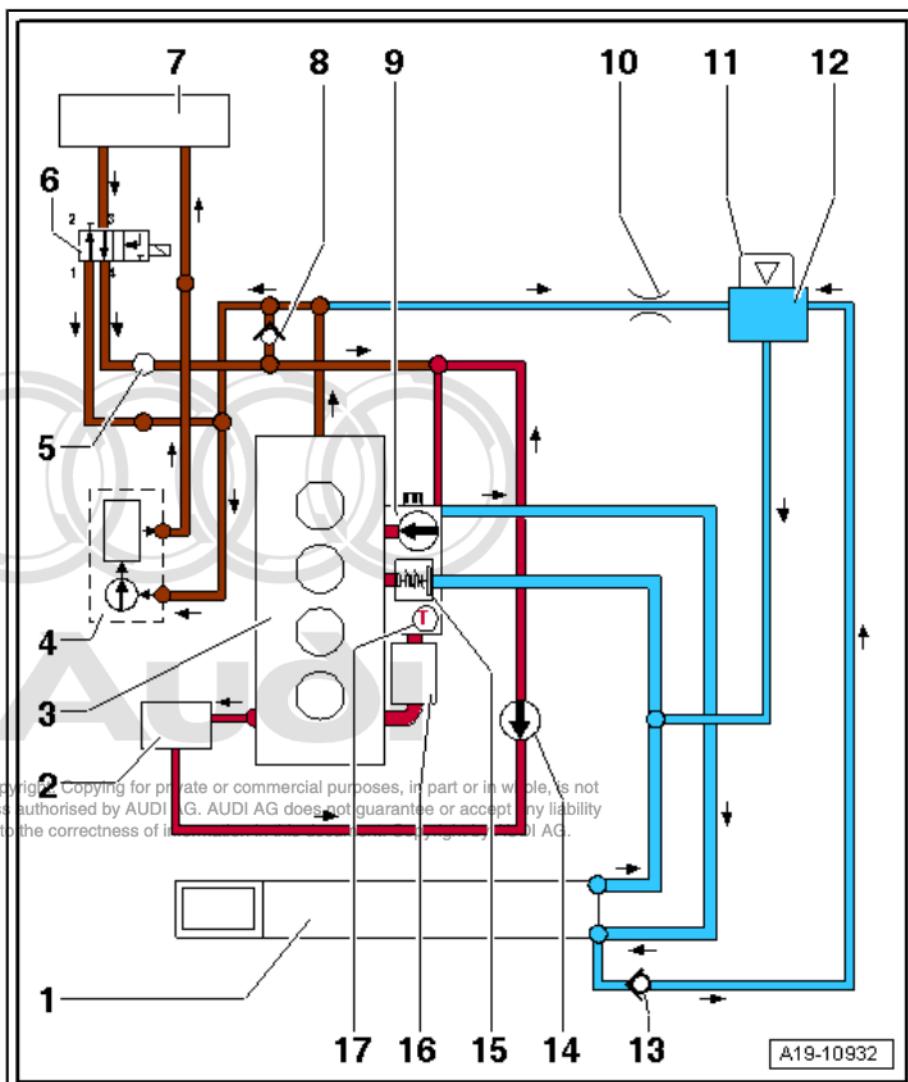
## 1.1.2 Connection diagram - coolant hoses, vehicles with manual gearbox and auxiliary heater



### Note

- ◆ Blue = Large coolant circuit.
- ◆ Red = Small coolant circuit.
- ◆ Brown = Heating circuit
- ◆ Arrows show direction of coolant flow.

- 1 - Radiator
- 2 - Turbocharger
- 3 - Cylinder head/cylinder block
- 4 - Auxiliary heater
- 5 - Bleeder hole
- 6 - Heater coolant shut-off valve - N279-
- 7 - Heat exchanger for heater
- 8 - Non-return valve
- 9 - Coolant pump
- 10 - Restrictor
- 11 - Filler cap for expansion tank
- 12 - Coolant expansion tank
- 13 - Non-return valve
- 14 - Continued coolant circulation pump - V51-
- 15 - Thermostat
- 16 - Engine oil cooler
- 17 - Coolant temperature sender - G62-



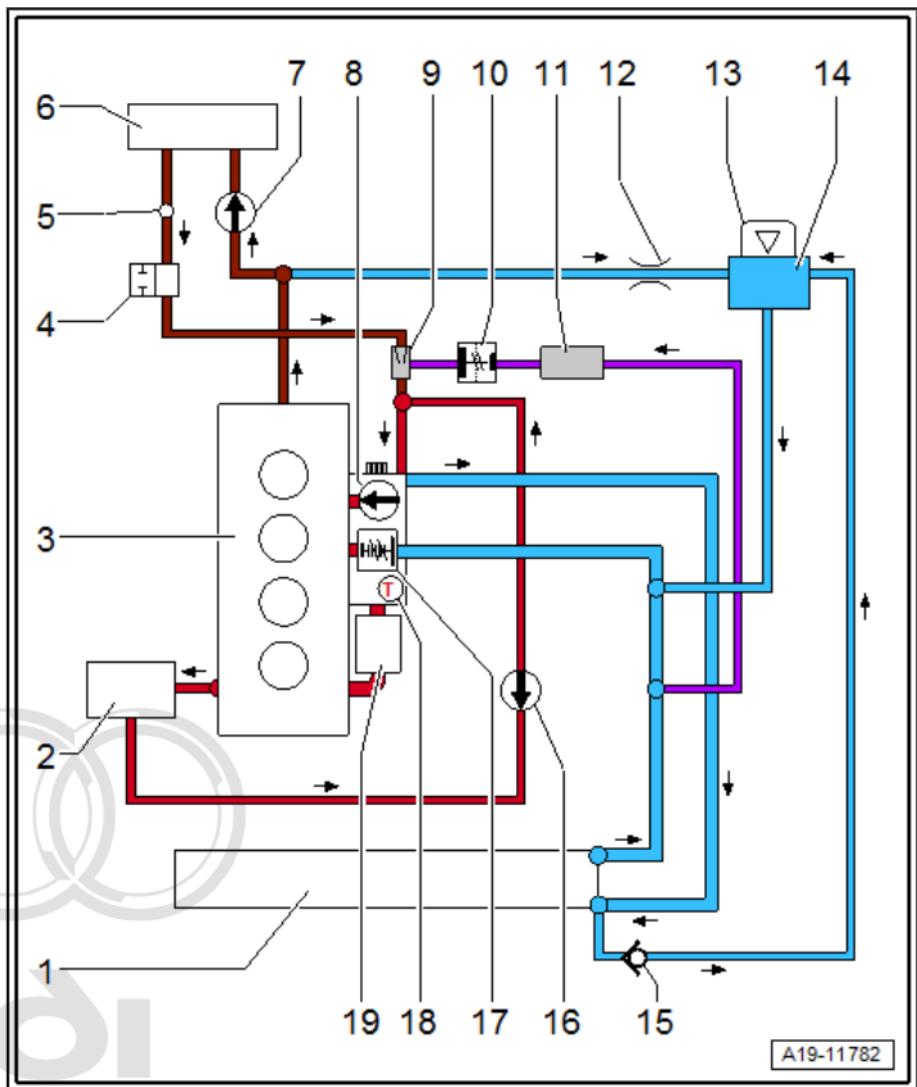
### 1.1.3 Connection diagram - coolant hoses, vehicles with multitronic/automatic gearbox and without auxiliary heater



#### Note

- ◆ Blue = Large coolant circuit.
- ◆ Red = Small coolant circuit.
- ◆ Brown = Heating circuit
- ◆ Violet = Coolant circuit for ATF.
- ◆ Arrows show direction of coolant flow.

- 1 - Radiator  
 2 - Turbocharger  
 3 - Cylinder head/cylinder block  
 4 - Coolant shut-off valve  
 Activated by Climatronic coolant shut-off valve - N422- (negative pressure)  
 5 - Bleeder hole  
 6 - Heat exchanger for heater  
 7 - Coolant circulation pump - V50-  
 Only installed on vehicles with start/stop system  
 8 - Coolant pump  
 9 - Suction-jet pump  
 10 - Thermostat  
 For coolant circuit for ATF  
 11 - ATF cooler  
 12 - Restrictor  
 13 - Filler cap for expansion tank  
 Checking pressure relief valve ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Cooling system/coolant; Checking cooling system for leaks  
 14 - Coolant expansion tank  
 15 - Non-return valve  
 16 - Continued coolant circulation pump - V51-  
 Only fitted on vehicles equipped for hot climates



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#### 14. Coolant expansion tank

- 15 - Non-return valve  
 16 - Continued coolant circulation pump - V51-  
 Only fitted on vehicles equipped for hot climates

- 17 - Thermostat
- 18 - Coolant temperature sender - G62-
- 19 - Engine oil cooler

#### 1.1.4 Connection diagram - coolant hoses, vehicles with multitronic/automatic gearbox and auxiliary heater

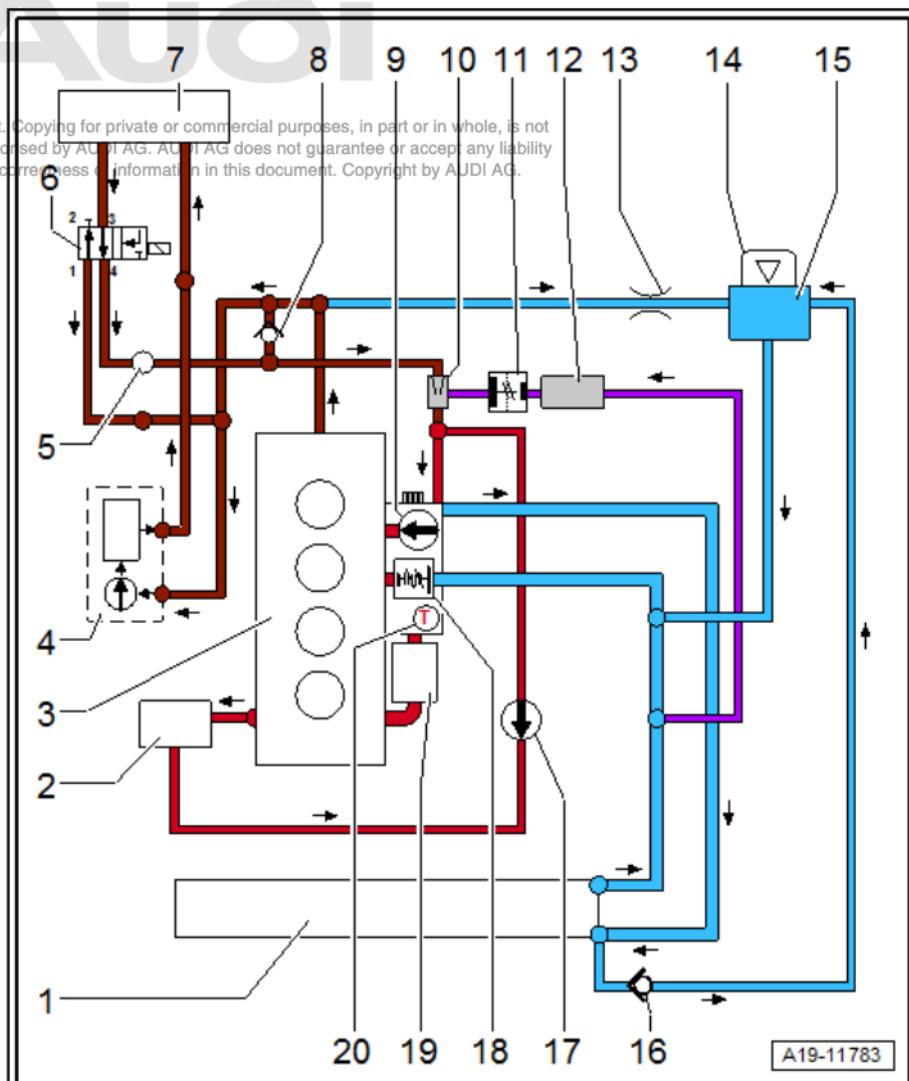


Note

- ◆ Blue = Large coolant circuit.
- ◆ Red = Small coolant circuit.
- ◆ Brown = Heating circuit
- ◆ Violet = Coolant circuit for ATF.
- ◆ Arrows show direction of coolant flow.

- 1 - Radiator
- 2 - Turbocharger
- 3 - Cylinder head/cylinder block
- 4 - Auxiliary heater
- 5 - Bleeder hole
- 6 - Heater coolant shut-off valve - N279-
- 7 - Heat exchanger for heater
- 8 - Non-return valve
- 9 - Coolant pump
- 10 - Suction-jet pump
- 11 - Thermostat
- 12 - ATF cooler
- 13 - Restrictor
- 14 - Filler cap for expansion tank

- Arrow indicates direction of flow
- For coolant circuit for ATF
- Checking pressure relief valve ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Cooling system/coolant; Checking cooling system for leaks



- 15 - Coolant expansion tank
- 16 - Non-return valve
- 17 - Continued coolant circulation pump - V51-
  - Only fitted on vehicles equipped for hot climates
- 18 - Thermostat
- 19 - Engine oil cooler
- 20 - Coolant temperature sender - G62-



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## 1.1.5 Connection diagram - coolant hoses, vehicles with hybrid drive



### Note

- ◆ Blue = Large coolant circuit.
- ◆ Red = Small coolant circuit.
- ◆ Brown = Heating circuit
- ◆ Green = Coolant circuit for power and control electronics for electric drive (low-temperature circuit).
- ◆ Orange = Coolant circuit for electric drive motor - V141- .
- ◆ Violet = Coolant circuit for ATF.
- ◆ Arrows show direction of coolant flow.

1 - Auxiliary radiator

- For coolant circuit for power and control electronics for electric drive

2 - Radiator

3 - Engine oil cooler

4 - Turbocharger

5 - Cylinder head/cylinder block

6 - Non-return valve

7 - Coolant circulation pump - V50-

8 - Heater coolant shut-off valve - N279-

9 - Bleeder hole

10 - Heat exchanger for heater

11 - Solenoid for coolant circuit - N492-

12 - Electric drive motor - V141-

13 - Suction-jet pump

14 - Thermostat

- For coolant circuit for ATF

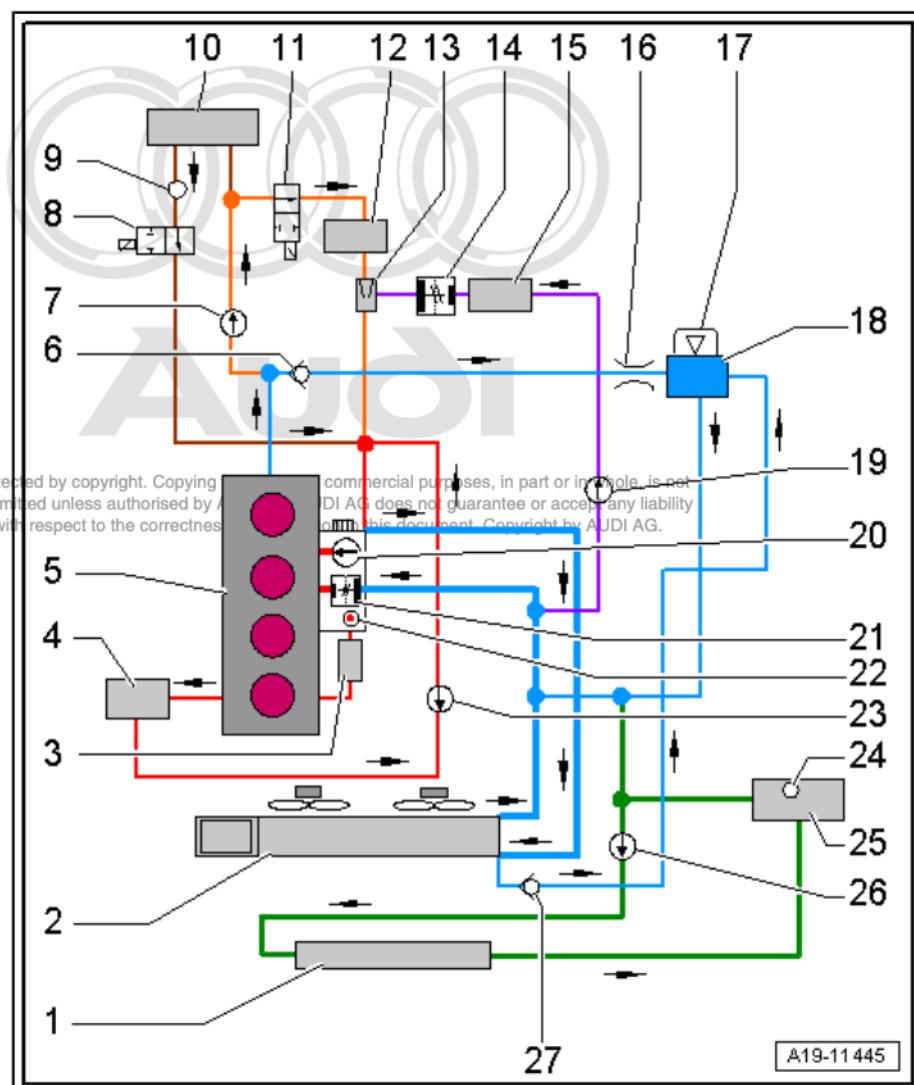
15 - ATF cooler

16 - Restrictor

- Located in coolant hose

17 - Filler cap for expansion tank

- Checking pressure relief valve ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Cooling system/coolant; Checking cooling system for leaks



A19-11445

- 18 - Coolant expansion tank
- 19 - Coolant pump for high-temperature circuit - V467-
- 20 - Coolant pump
- 21 - Thermostat
- 22 - Coolant temperature sender - G62-
- 23 - Continued coolant circulation pump - V51-
- 24 - Bleeder screw
- 25 - Power and control electronics for electric drive - JX1-
- 26 - Coolant pump for low-temperature circuit - V468-
- 27 - Non-return valve

## 1.2 Checking cooling system for leaks

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Cooling system/coolant; Checking cooling system for leaks .

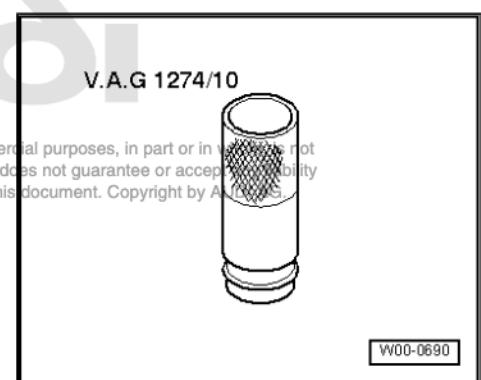
## 1.3 Draining and filling cooling system

Special tools and workshop equipment required

- ◆ Adapter for cooling system tester - V.A.G 1274/8-



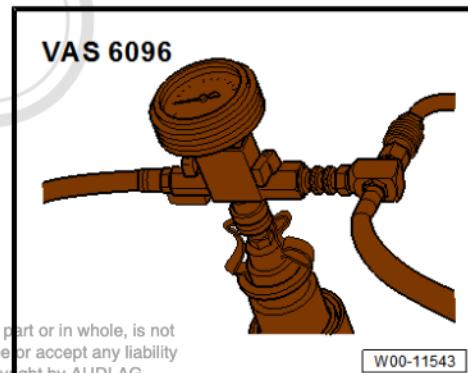
- ◆ Pipe for cooling system tester - V.A.G 1274/10-



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- ◆ Cooling system charge unit - VAS 6096-

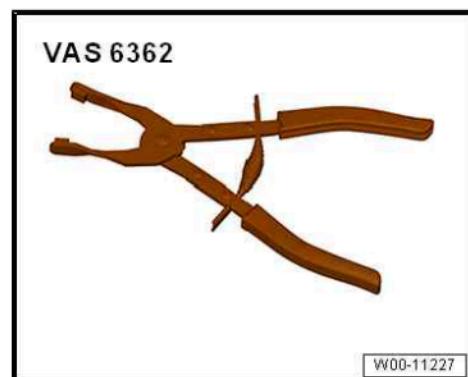


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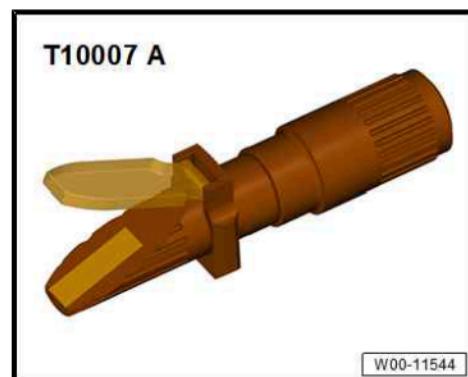
- ◆ Drip tray for workshop hoist - VAS 6208-



- ◆ Hose clip pliers - VAS 6362-



- ◆ Refractometer - T10007 A-



- ◆ Protective gloves
- ◆ Safety goggles

## Draining

### CAUTION

The cooling system is under pressure when the engine is hot.  
 Risk of scalding due to hot steam and hot coolant.

Danger of scalding skin and other parts of the body.

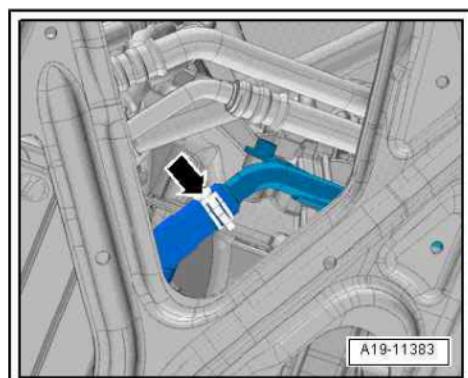
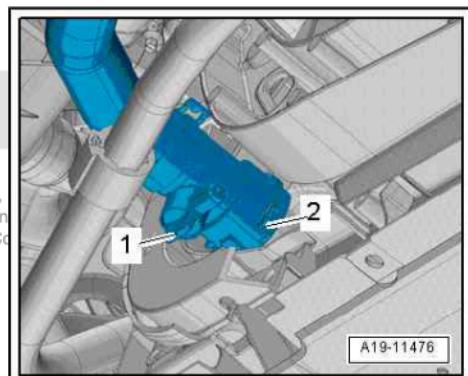
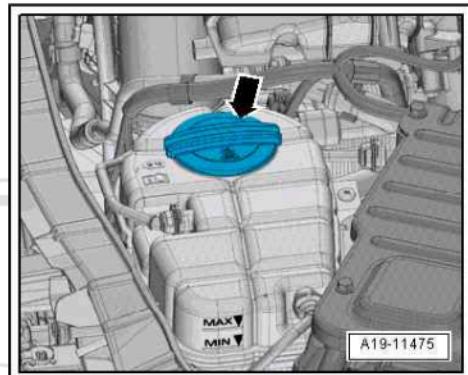
- Put on protective gloves.
- Put on safety goggles.
- Cover filler cap on expansion tank with a cloth and open carefully to release pressure.

- Open filler cap -arrow- on coolant expansion tank.

### Note

*Illustration shows a vehicle with hybrid drive as an example.*

- Remove noise insulation (front) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Vehicles with 8-speed automatic gearbox 0BW: Remove additional rear noise insulation.
- Place drip tray for workshop hoist - VAS 6208- beneath engine.
- Remove drain plug -1- and drain off coolant.



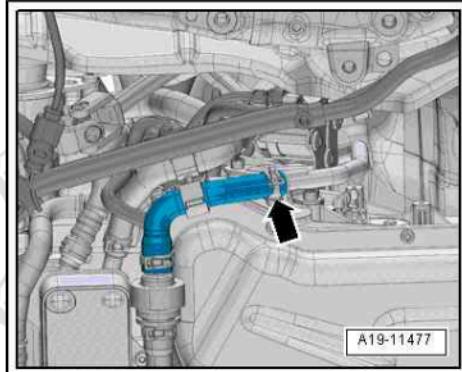
- Vehicles with multitronic gearbox: Release hose clip -arrow-, disconnect coolant hose and drain off coolant.

- Vehicles with 8-speed automatic gearbox 0BW: Release hose clip -arrow- and detach coolant hose.
- Drain off coolant.



*Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*

- Close drain plug.
- Re-connect coolant hoses.



#### Coolant specifications

All information can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system .

#### Recommended mixture ratio for coolant

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- Coolant (40 %) and water (60 %) for frost protection to -25 °C
- Coolant (50 %) and water (50 %) for frost protection to -36 °C
- Coolant ⇒ Electronic parts catalogue



Danger of corrosion damage if unsuitable mixtures of water and coolant additives are used.

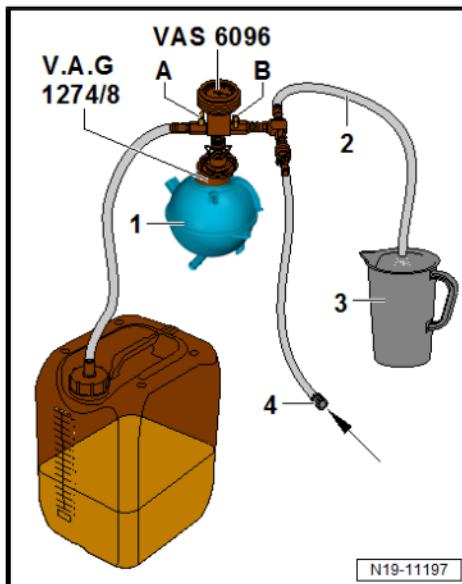
- Always use distilled water as this ensures optimum corrosion protection.

#### Filling cooling system



*Do not reuse coolant.*

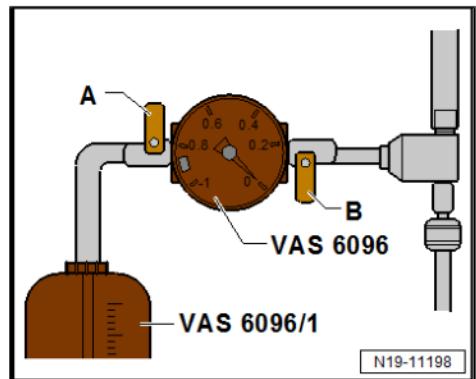
- Fill reservoir of cooling system charge unit - VAS 6096- with 10 litres of premixed coolant (according to recommended ratio). For recommended ratio, refer to [page 86](#) .
- Fit adapter for cooling system tester - V.A.G 1274/8- onto coolant expansion tank.
- Attach cooling system charge unit - VAS 6096- to adapter for cooling system tester - V.A.G 1274/8- .
- Run vent hose -1- into a small container -2-.



*The vented air draws along a small amount of coolant, which should be collected.*

- Close both valves -A- and -B- (turn lever at right angles to direction of flow).
- Connect hose -3- to compressed air supply.
- Pressure: 7 ... 10 bar.

- Open valve -B- by setting lever in direction of flow.
- The suction jet pump generates a partial vacuum in the cooling system; the needle on the gauge should move into the green zone.
- Also briefly open valve -A- (turn lever in direction of flow) so that hose on reservoir of cooling system charge unit - VAS 6096- can fill with coolant.
- Close valve -A- again.
- Leave valve -B- open for another 2 minutes.
- The suction jet pump continues to generate a partial vacuum in the cooling system; the needle on the gauge should remain in the green zone.
- Close valve -B-.
- The needle on the gauge should stop in the green zone. The vacuum level in the cooling system is then sufficient for subsequent filling.



#### Note

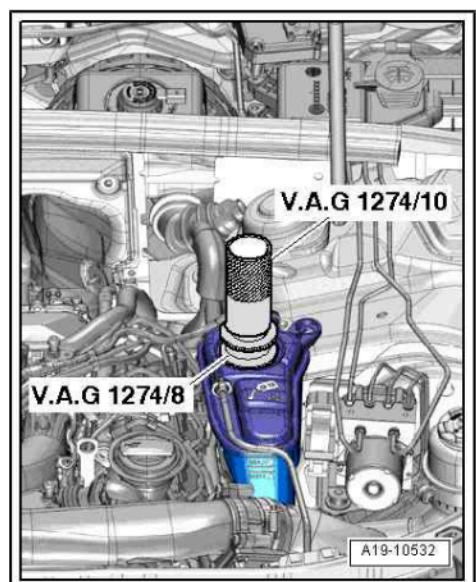
- ◆ If the needle does not reach the green zone, repeat the process.
- ◆ Check cooling system for leaks if the vacuum is not maintained.
- Detach compressed air hose.
- Open valve -A-.
- The vacuum in the cooling system causes the coolant to be drawn out of the reservoir of the cooling system charge unit - VAS 6096- ; the cooling system is then filled.
- Detach cooling system charge unit - VAS 6096- from adapter for cooling system tester - V.A.G 1274/8- on coolant expansion tank.
- Fit pipe for cooling system tester - V.A.G 1274/10- onto adapter for cooling system tester - V.A.G 1274/8- .



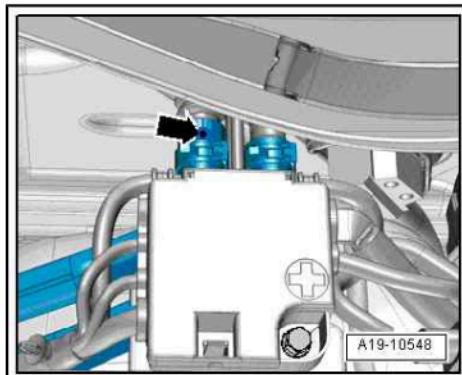
#### Note

**Illustration shows vehicle without hybrid drive.**  
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- Fill up pipe for cooling system tester - V.A.G 1274/10- with coolant. If required, add further coolant when performing bleeding procedure.
- Remove plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .



- Release coolant hose going to heat exchanger for heater and pull back hose until bleeder hole -arrow- in hose is no longer blocked by connection.
- Fill up with coolant until it flows out at bleeder hole in coolant hose.
- Push coolant hose back onto connection and secure with spring-type hose clip.

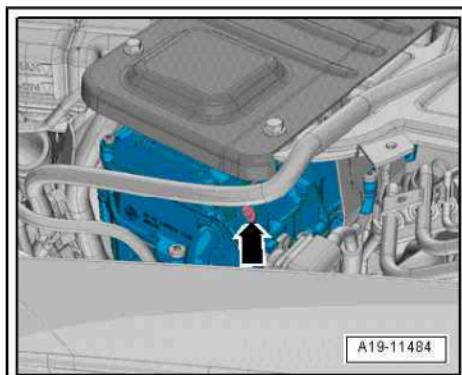


#### Vehicles with hybrid drive:

- Open bleeder screw -arrow-.
- Fill up with coolant until it comes out at power and control electronics for electric drive - JX1- .
- Close bleeder screw -arrow-.

#### Continued for all vehicles:

- Close filler cap on expansion tank.
- Start engine.
- Set temperature to "HI" in all zones.
- Set fresh air blower to lowest setting.
- Switch off air conditioner compressor (press **ECON** button).
- Run engine for 3 minutes at 2000 rpm.
- Allow engine to run at idling speed until both large coolant hoses at radiator become warm.
- Run engine for 2 minutes at 2000 rpm.
- On vehicles with auxiliary heater, switch heater on for approx. 30 seconds and allow engine to run at idling speed.
- Switch off ignition and allow engine to cool down.
- Install noise insulation (front) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .



#### Checking coolant level

##### CAUTION

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The cooling system is under pressure when the engine is hot.  
Risk of scalding due to hot steam and hot coolant.

Danger of scalding skin and other parts of the body.

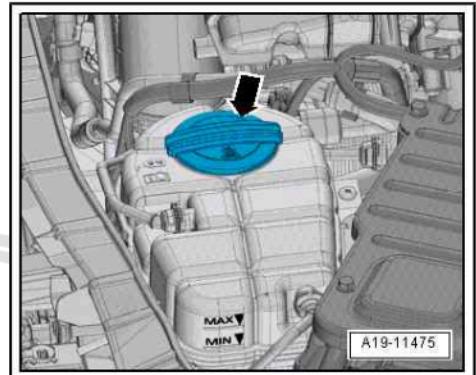
- Put on protective gloves.
- Put on safety goggles.
- Cover filler cap on expansion tank with a cloth and open carefully to release pressure.

- The coolant level must be at the "MAX" marking when the engine is cold.
- The coolant level can be above the "MAX" marking when the engine is warm.



Note

*Illustration shows a vehicle with hybrid drive as an example.*



# Audi

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## 2 Coolant pump/thermostat assembly

- ⇒ [“2.1 Exploded view - coolant pump/thermostat”, page 90](#)
- ⇒ [“2.2 Exploded view - electric coolant pump”, page 90](#)
- ⇒ [“2.3 Removing and installing electric coolant pump”, page 95](#)
- ⇒ [“2.4 Removing and installing coolant pump”, page 103](#)
- ⇒ [“2.5 Removing and installing toothed belt for coolant pump”, page 104](#)
- ⇒ [“2.6 Removing and installing thermostat”, page 105](#)
- ⇒ [“2.7 Checking thermostat”, page 105](#)
- ⇒ [“2.8 Removing and installing coolant temperature sender G62”, page 105](#)
- ⇒ [“2.9 Removing and installing coolant valves”, page 106](#)

### 2.1 Exploded view - coolant pump/thermostat

All components are described in ⇒ [Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Exploded view - coolant pump/thermostat](#).  
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### 2.2 Exploded view - electric coolant pump

- ⇒ [“2.2.1 Exploded view - electric coolant pump, continued coolant circulation pump V51 , version 1 for vehicles without hybrid drive”, page 90](#)
- ⇒ [“2.2.2 Exploded view - electric coolant pump, continued coolant circulation pump V51 , version 2 for vehicles without hybrid drive”, page 92](#)
- ⇒ [“2.2.3 Exploded view - electric coolant pump, coolant circulation pump V50 , vehicles with hybrid drive”, page 93](#)
- ⇒ [“2.2.4 Exploded view - electric coolant pump, pump unit, vehicles with hybrid drive”, page 94](#)

#### 2.2.1 Exploded view - electric coolant pump, continued coolant circulation pump - V51- , version 1 for vehicles without hybrid drive

1 - Bolt  
 2.7 Nm

2 - Spacer sleeve

3 - Grommet

4 - Bracket

5 - Nut

9 Nm

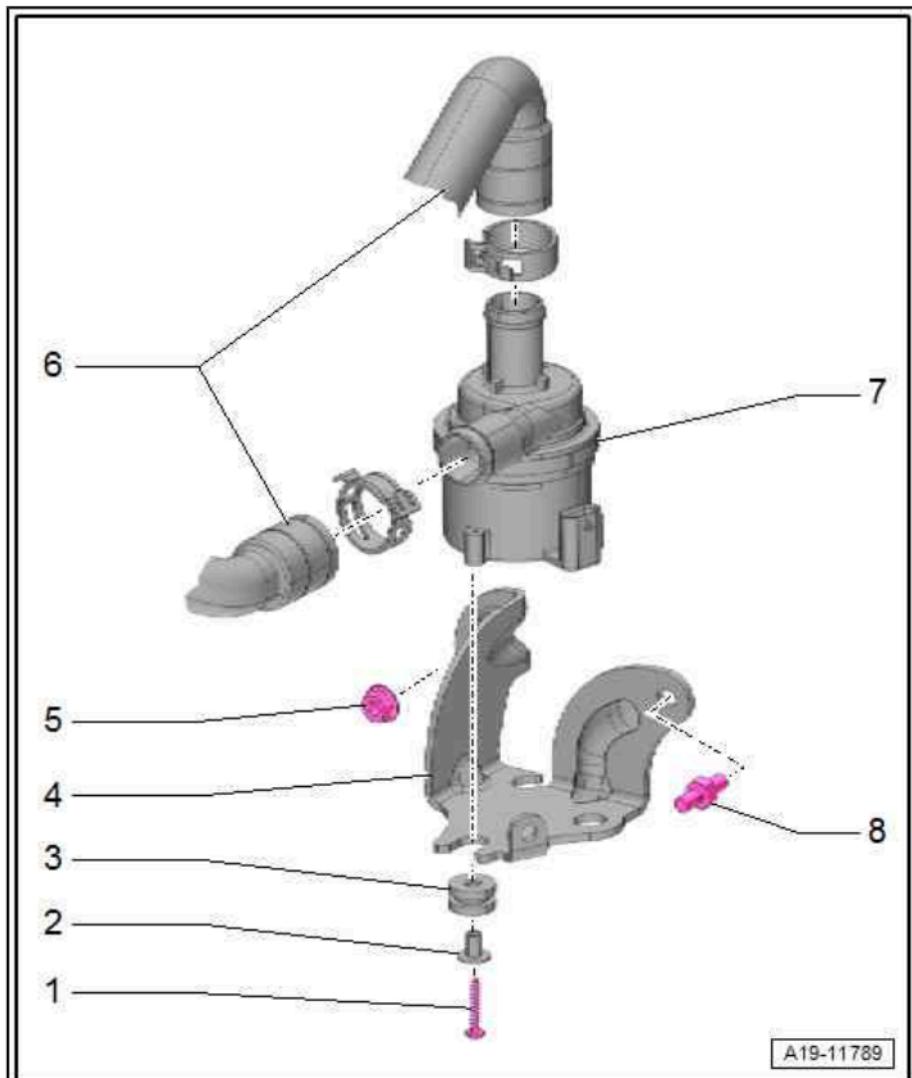
6 - Coolant hoses

7 - Continued coolant circulation pump - V51-

Removing and installing  
⇒ "2.3.1 Removing and  
 installing continued  
 coolant circulation  
 pump V51 - version 1 for  
 vehicles without hybrid  
 drive", page 95

8 - Centre hex stud

9 Nm



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## 2.2.2 Exploded view - electric coolant pump, continued coolant circulation pump - V51- , version 2 for vehicles without hybrid drive

1 - Coolant hoses

2 - Continued coolant circulation pump - V51-

- Removing and installing  
⇒ "2.3.2 Removing and  
installing continued  
coolant circulation  
pump V51 - version 2 for  
vehicles without hybrid  
drive", page 96

3 - Bracket

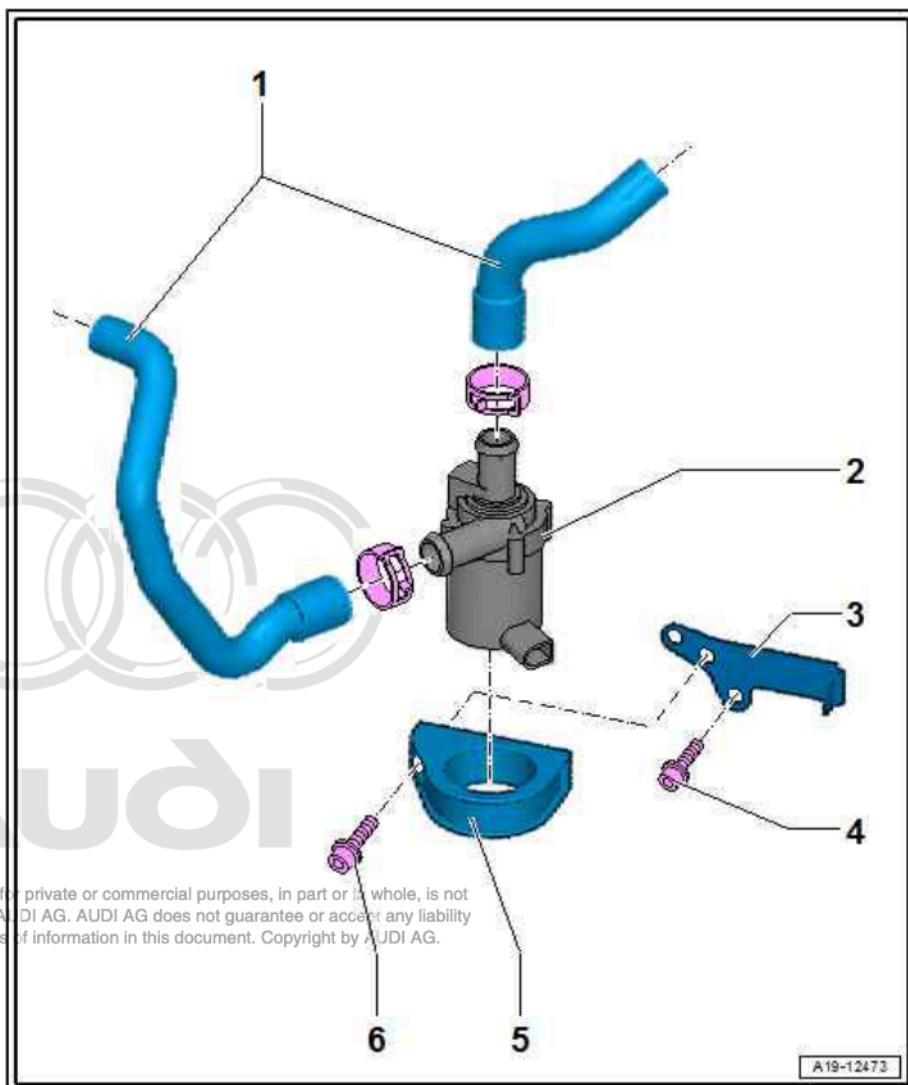
4 - Bolt

- 9 Nm

5 - Bracket

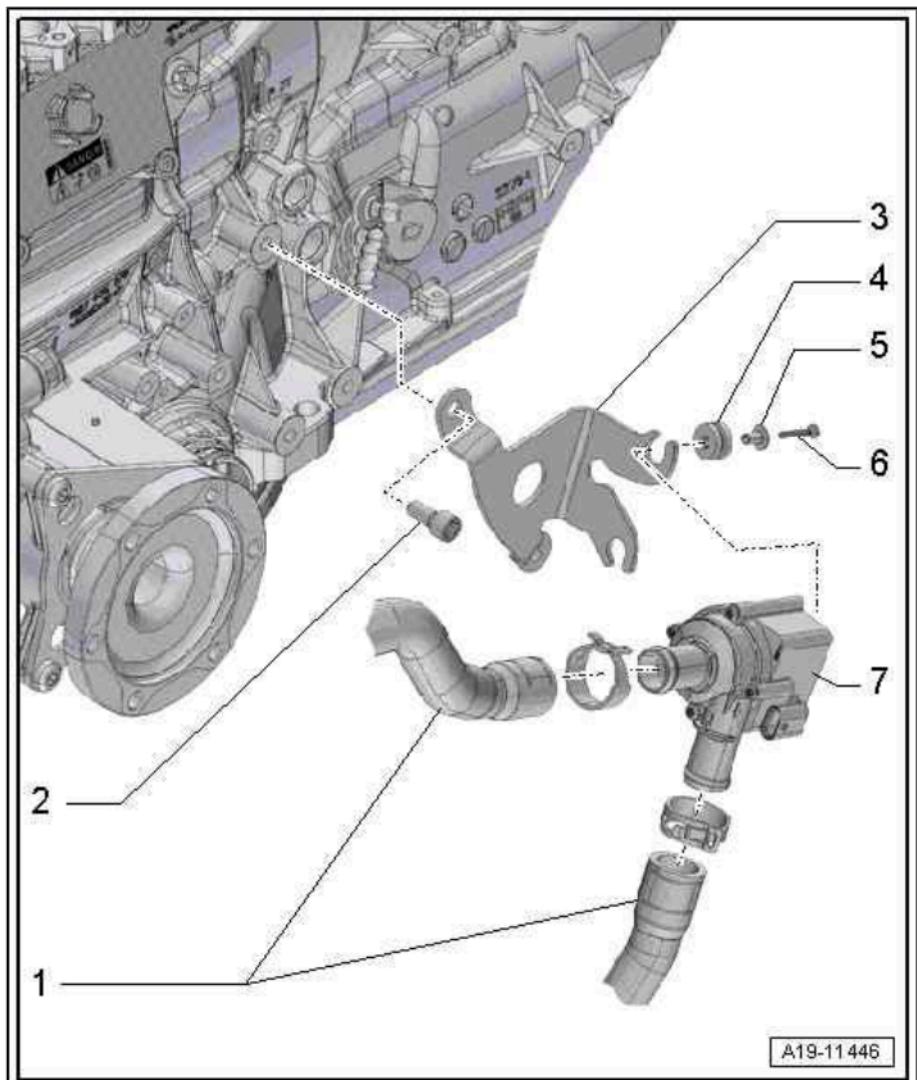
6 - Bolt

- 4 Nm



## 2.2.3 Exploded view - electric coolant pump, coolant circulation pump - V50- , vehicles with hybrid drive

- 1 - Coolant hoses
- 2 - Bolt
  - 23 Nm
- 3 - Bracket
  - For coolant circulation pump - V50-
- 4 - Rubber grommet
- 5 - Spacer sleeve
- 6 - Bolt
  - 2.7 Nm
- 7 - Coolant circulation pump - V50-
  - Removing and installing  
⇒ "2.3.3 Removing and installing coolant circulation pump V50 ", page 98



## 2.2.4 Exploded view - electric coolant pump, pump unit, vehicles with hybrid drive

1 - Bracket

2 - Bolt

- 23 Nm

3 - Coolant hose

4 - Coolant pump for high-temperature circuit - V467-

- Removing and installing  
[⇒ page 101](#)

5 - Bolt

- 9 Nm

6 - Coolant hose

7 - Solenoid for coolant circuit - N492-

- Removing and installing  
[⇒ page 106](#)

8 - Coolant hoses

9 - Coolant valve for electric drive - N565-

- Removing and installing  
[⇒ page 106](#)

10 - Coolant hose

11 - Bolt

- 9 Nm

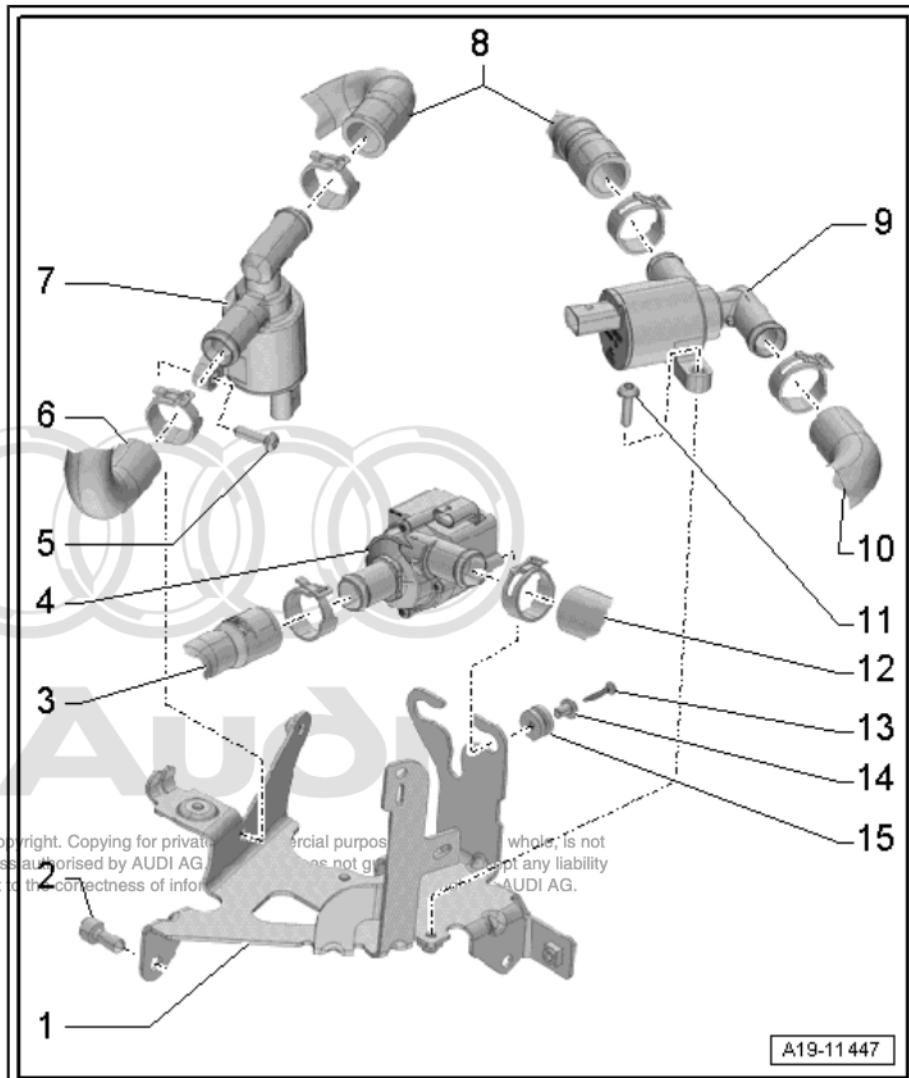
12 - Coolant hose

13 - Bolt

- 2.7 Nm

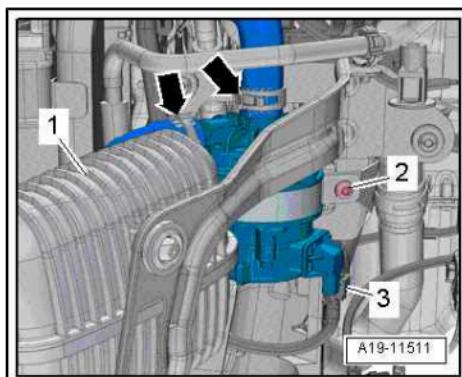
14 - Spacer sleeve

15 - Rubber grommet



Coolant pump for low-temperature circuit - V468- - tightening torque

- Tighten bolt -2- to 9 Nm.



## 2.3 Removing and installing electric coolant pump

⇒ "2.3.1 Removing and installing continued coolant circulation pump V51 - version 1 for vehicles without hybrid drive",  
page 95

⇒ "2.3.2 Removing and installing continued coolant circulation pump V51 - version 2 for vehicles without hybrid drive",  
page 96

⇒ "2.3.3 Removing and installing coolant circulation pump V50 ",  
page 98

⇒ "2.3.4 Removing and installing coolant pump V36 ",  
page 99

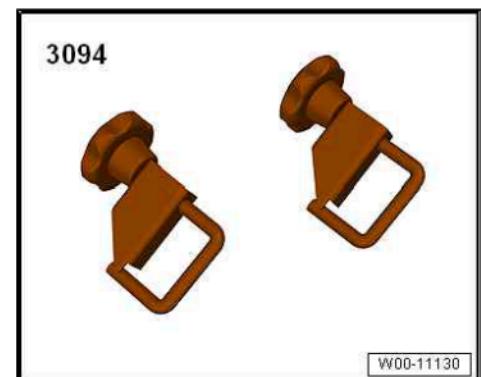
⇒ "2.3.5 Removing and installing coolant pump for high-temperature circuit V467 ", page 101

⇒ "2.3.6 Removing and installing coolant pump for low-temperature circuit V468 ", page 102

### 2.3.1 Removing and installing continued coolant circulation pump - V51- - version 1 for vehicles without hybrid drive

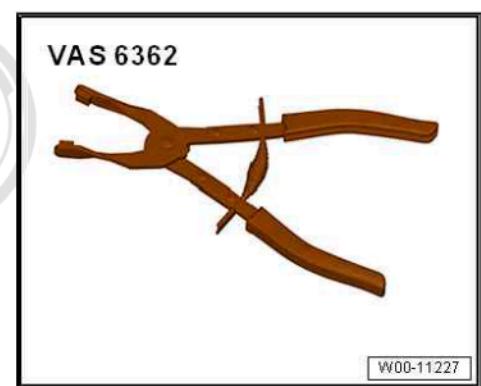
Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-



W00-111130

- ◆ Hose clip pliers - VAS 6362-

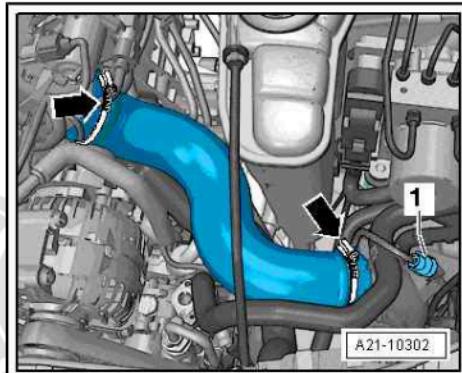


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## Removing

- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Release hose clips -arrows- and detach air hose.



- Unplug electrical connector -5-.
- Remove nut -4-, move earth wire clear and remove centre hex stud.
- Unscrew nut -2-.
- Clamp off coolant hoses using hose clamps up to 25 mm - 3094- , release hose clips -3- and disconnect hoses.
- Remove bolts -1- and detach continued coolant circulation pump - V51- .

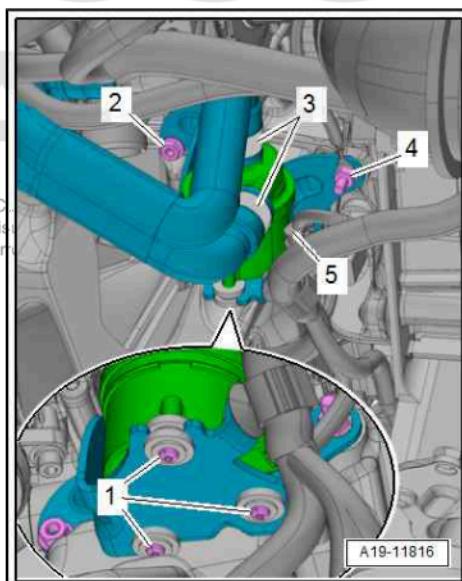
## Installing

Installation is carried out in reverse order; note the following:



### Note

*Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*



- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Check coolant level [⇒ page 88](#) .

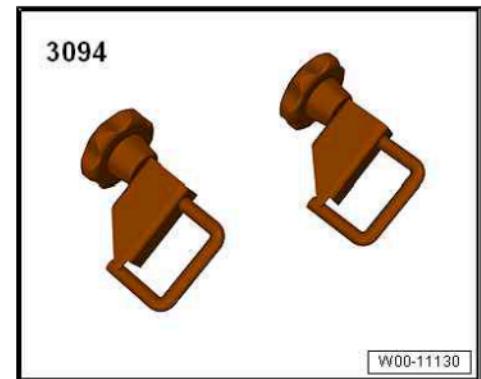
## Tightening torques

- ◆ [⇒ "2.2.1 Exploded view - electric coolant pump, continued coolant circulation pump V51 , version 1 for vehicles without hybrid drive", page 90](#)
- ◆ [⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system](#)

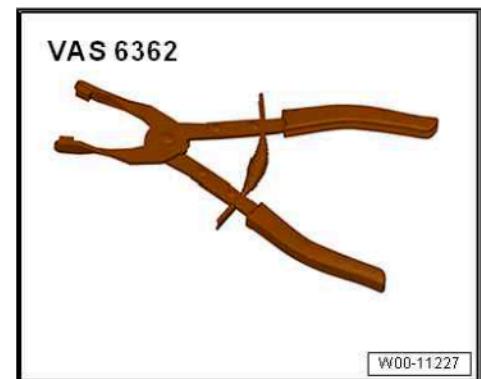
## 2.3.2 Removing and installing continued coolant circulation pump - V51- - version 2 for vehicles without hybrid drive

Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-

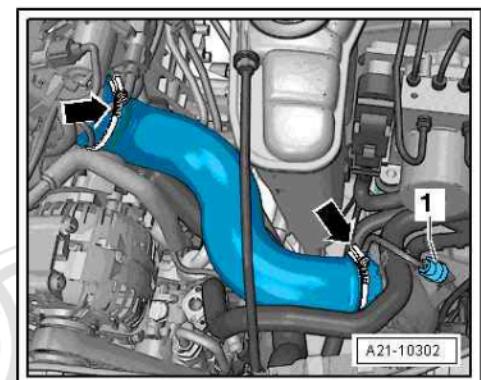


- ◆ Hose clip pliers - VAS 6362-



#### Removing

- Release hose clips -arrows- and detach air hose.



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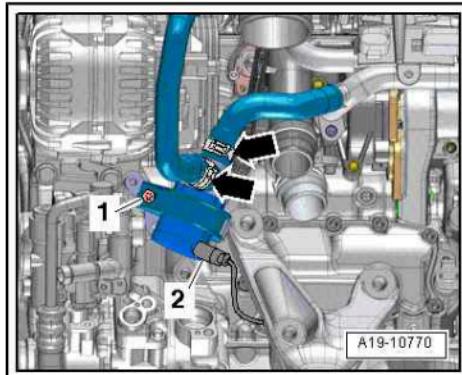
Note

Place a cloth under coolant pipe to catch escaping coolant.

- Clamp off coolant hoses -arrows- with hose clamps up to 25 mm - 3094- and detach.
- Unplug electrical connector -2-.
- Remove bolt -1- and detach continued coolant circulation pump - V51- .

Installing

Installation is carried out in reverse order; note the following:



Note

Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ *Electronic parts catalogue*.

- Check coolant level ⇒ [page 88](#) .

Tightening torques

- ◆ ⇒ “[2.2.2 Exploded view - electric coolant pump, continued coolant circulation pump V51, version 2 for vehicles without hybrid drive](#)”, page 92
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system

### 2.3.3 Removing and installing coolant circulation pump - V50-

Note

The procedure described only applies for vehicles with hybrid drive.

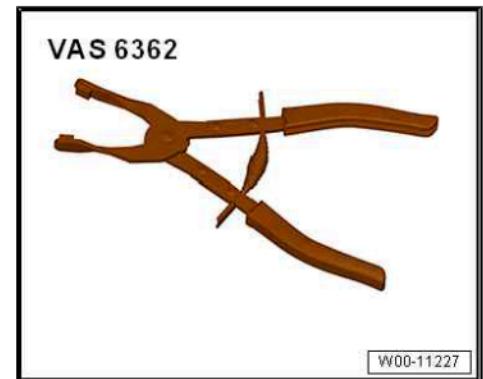
Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-



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- ◆ Hose clip pliers - VAS 6362-



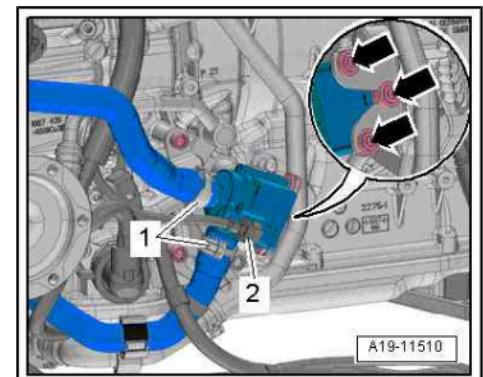
### Removing

- Remove noise insulation (rear) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Unplug electrical connector -2-.
- Remove bolts -arrows-.



*Place a cloth underneath to catch escaping coolant.*

- Clamp off coolant hoses using hose clamps up to 25 mm - 3094- ; release hose clips -1- to disconnect hoses and detach coolant circulation pump - V50- .



### Installing

Installation is carried out in the reverse order; note the following:



- ◆ Fit new O-rings.
- ◆ Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .

- Check coolant level [⇒ page 88](#) .

### Tightening torques

- ◆ ⇒ “[2.2.3 Exploded view - electric coolant pump, coolant circulation pump V50 , vehicles with hybrid drive](#)” [page 93](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

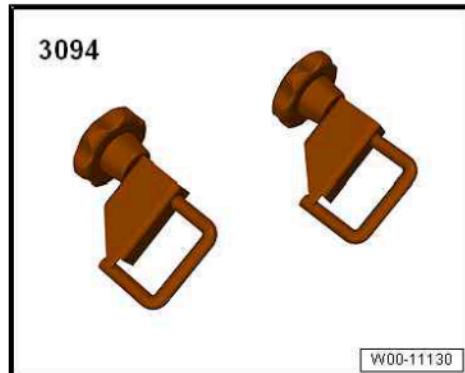
## 2.3.4 Removing and installing coolant pump - V36-



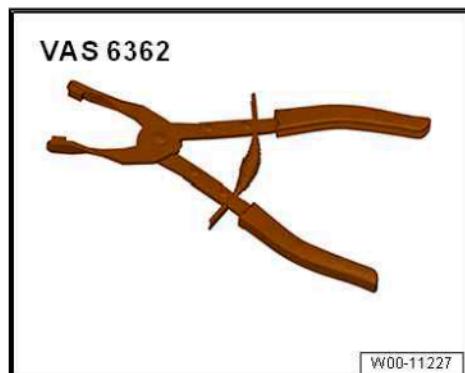
*The procedure described only applies for vehicles with hybrid drive.*

Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-



- ◆ Hose clip pliers - VAS 6362-



## Removing

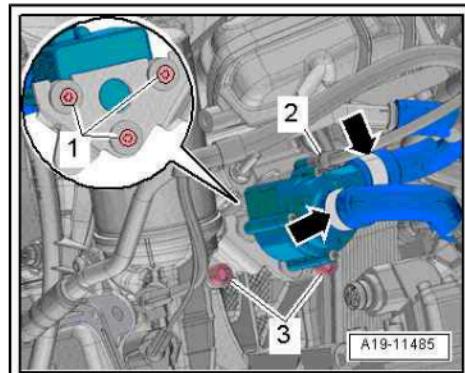
- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Unplug electrical connector -2-.
- Remove bolts -3-.



Note

*Place a cloth underneath to catch escaping coolant.*

- Clamp off coolant hoses using hose clamps up to 25 mm - 3094-, release hose clips -arrows- and disconnect hoses.
- Remove bolt -1- and detach continued coolant circulation pump - V51- from bracket.



## Installing

Installation is carried out in reverse order; note the following:



Note

*Secure all hose connections with the correct type of hose clips, is not (same as original equipment) ⇒ Electronic parts catalogue*, with respect to the correctness of information in this document. Copyright by AUDI AG.

- Check coolant level ⇒ [page 88](#) .

## Tightening torques

- ◆ ⇒ ["3.1.2 Exploded view - coolant pipes, vehicles with hybrid drive", page 110](#)

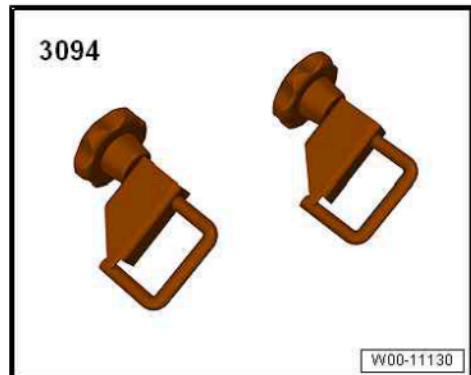
### 2.3.5 Removing and installing coolant pump for high-temperature circuit - V467-



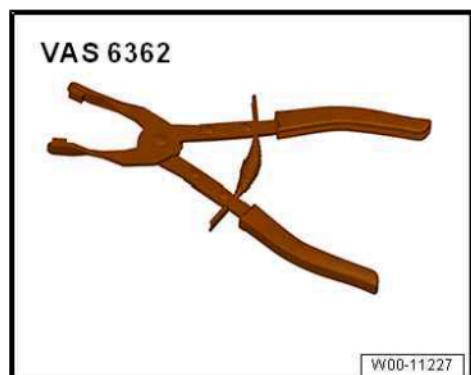
*The procedure described only applies for vehicles with hybrid drive.*

Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-

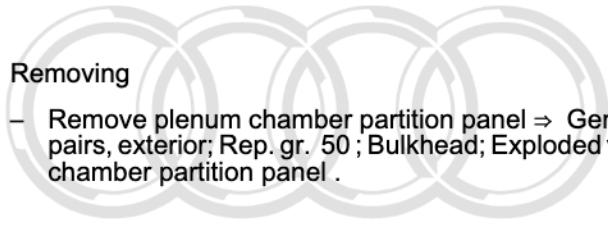


- ◆ Hose clip pliers - VAS 6362-



#### Removing

- Remove plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber partition panel .



- Unplug electrical connector -2-.
- Remove bolts -arrows-.

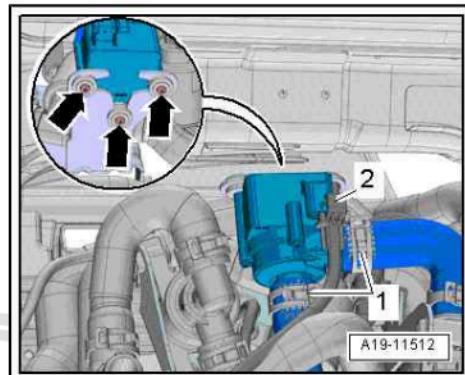


Place a cloth underneath to catch escaping coolant.

- Clamp off coolant hoses using hose clamps up to 25 mm - 3094-, release hose clips -1- and disconnect hoses.
- Detach coolant pump for high-temperature circuit - V467- .

#### Installing

Installation is carried out in the reverse order; note the following:



Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .

- Install plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber partition panel .
- Check coolant level ⇒ [page 88](#) .

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#### Tightening torques

- ◆ ⇒ "2.2.4 Exploded view - electric coolant pump, pump unit, vehicles with hybrid drive", page 94

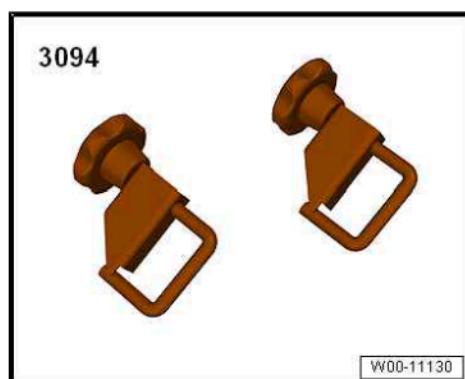
### 2.3.6 Removing and installing coolant pump for low-temperature circuit - V468-



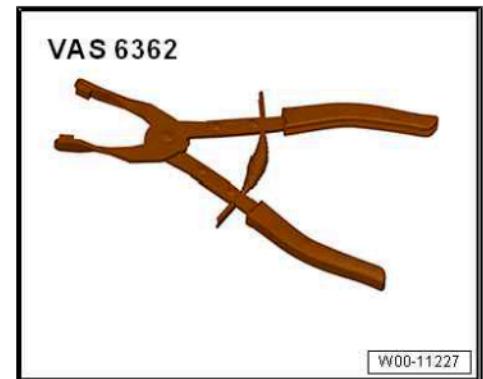
The procedure described only applies for vehicles with hybrid drive.

Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-



- ◆ Hose clip pliers - VAS 6362-



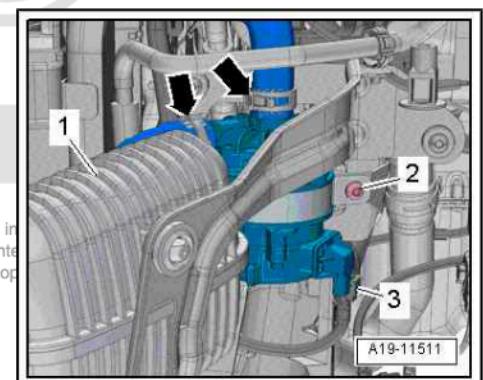
#### Removing

- Remove front wheel (left-side) ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- Remove wheel spoiler (front left) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front) .
- Unfasten front section of wheel housing liner (front left) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) and push it to rear.
- Disengage resonator -1- from bracket and push to one side.



Place a cloth underneath to catch escaping coolant.

- Clamp off coolant hoses using hose clamps up to 25 mm- 3094- , release hose clips -arrows- and disconnect hoses.
- Unplug electrical connector -3-.
- Unscrew bolt -2-, pivot retaining bracket to front and detach coolant pump for low-temperature circuit - V468- .



#### Installing

Installation is carried out in the reverse order; note the following:



Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .

- Check coolant level [⇒ page 88](#) .

#### Tightening torques

- ◆ [⇒ Fig. "Coolant pump for low-temperature circuit -V468- - tightening torque" , page 94](#)
- ◆ ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front)

## 2.4 Removing and installing coolant pump

#### Removing

- Remove small coolant pipe:

- ◆ ⇒ “3.2.2 Removing and installing small coolant pipe - vehicles without hybrid drive”, page 112
- ◆ ⇒ “3.2.3 Removing and installing small coolant pipe - vehicles with hybrid drive”, page 113

– Remove toothed belt for coolant pump ⇒ [page 104](#).

Vehicles without hybrid drive:

– Remove throttle valve module - J338- ⇒ [page 164](#) (if not already removed).

Continued for all vehicles:

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Removing and installing coolant pump .

#### Installing

Additional work:

- Install throttle valve module - J338- ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Removing and installing throttle valve module - J338- .
- Install small coolant pipe ⇒ [page 112](#) .

## 2.5 Removing and installing toothed belt for coolant pump

#### Removing

– Remove small coolant pipe:

- ◆ ⇒ “3.2.2 Removing and installing small coolant pipe - vehicles without hybrid drive”, page 112
- ◆ ⇒ “3.2.3 Removing and installing small coolant pipe - vehicles with hybrid drive”, page 113

– Disconnect coolant hoses -1 and 2- and move clear to one side.

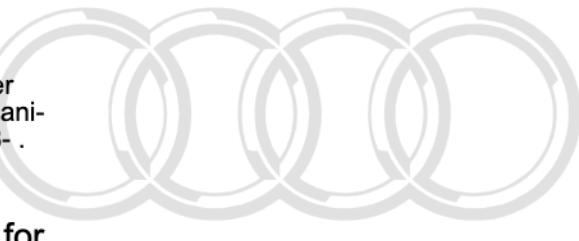
– If fitted, remove continued coolant circulation pump - V51- ⇒ “[2.3 Removing and installing electric coolant pump](#)”, [page 95](#) .

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Removing and installing toothed belt for coolant pump .

#### Installing

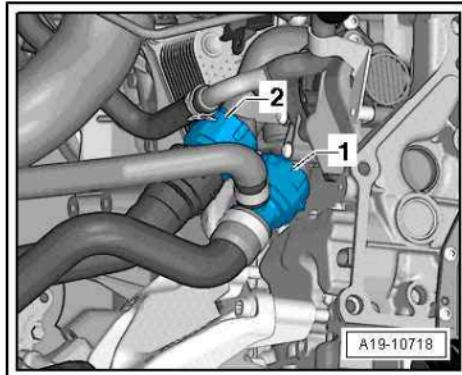
Additional work:

- If previously removed, install continued coolant circulation pump - V51- ⇒ “[2.3 Removing and installing electric coolant pump](#)”, [page 95](#) .
- Install small coolant pipe:
- ◆ ⇒ “3.2.2 Removing and installing small coolant pipe - vehicles without hybrid drive”, page 112
- ◆ ⇒ “3.2.3 Removing and installing small coolant pipe - vehicles with hybrid drive”, page 113



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## 2.6 Removing and installing thermostat

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Removing and installing thermostat .

## 2.7 Checking thermostat

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Checking thermostat .

## 2.8 Removing and installing coolant temperature sender - G62-

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⇒ “[2.8.1 Removing and installing coolant temperature sender G62 - vehicles without hybrid drive](#)”, page 105

⇒ “[2.8.2 Removing and installing coolant temperature sender G62 - vehicles with hybrid drive](#)”, page 105

### 2.8.1 Removing and installing coolant temperature sender - G62- - vehicles without hybrid drive

#### Removing

- Remove throttle valve module - J338- [⇒ page 164](#) .
- Remove support for intake manifold (remove nut -2- and bolt -1-).

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Removing and installing coolant temperature sender - G62- .

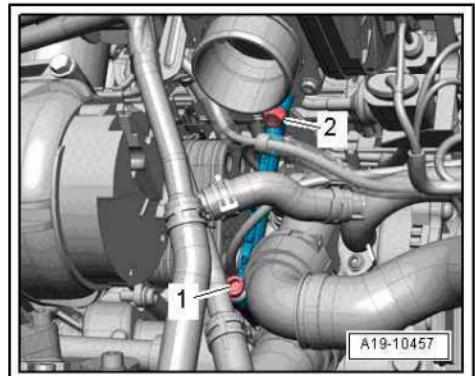
#### Installing

##### Additional work:

- Install throttle valve module - J338- ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Removing and installing throttle valve module - J338- .

#### Tightening torques

- ◆ ⇒ “[3.1 Exploded view - air cleaner housing](#)”, page 151
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Exploded view - intake manifold



### 2.8.2 Removing and installing coolant temperature sender - G62- - vehicles with hybrid drive

#### Removing

#### DANGER

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- The high-voltage system must be de-energised by a suitably qualified person.
- De-energise high-voltage system ⇒ Electric drive; Rep. gr. 93 ; De-energising high-voltage system .

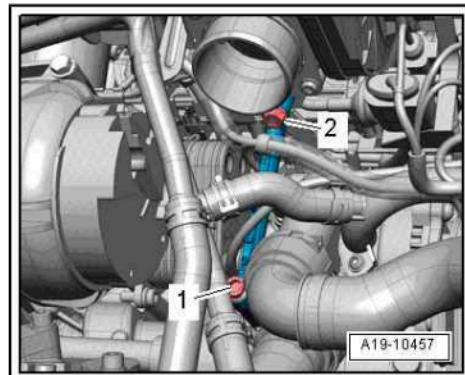
- Remove electrical air conditioner compressor -V470- from bracket for ancillaries and tie up to left side ⇒ Heating, air conditioning; Rep. gr. 87 ; Air conditioner compressor; Detaching and attaching air conditioner compressor at bracket .
- Remove throttle valve module - J338- [⇒ page 164](#) .
- Remove support for intake manifold (remove nut -2- and bolt -1-).

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Removing and installing coolant temperature sender - G62- .

## Installing

### Additional work:

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- [Install throttle valve module J338](#) ⇒ [Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24](#) ; Intake manifold; Removing and installing throttle valve module - J338- .
  - Install electrical air conditioner compressor -V470- ⇒ Heating, air conditioning; Rep. gr. 87 ; Air conditioner compressor; Detaching and attaching air conditioner compressor at bracket .



### ⚠ WARNING

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- The high-voltage system must be re-energised by a suitably qualified person.

- Re-energise high-voltage system ⇒ Electric drive; Rep. gr. 93 ; Re-energising high-voltage system .

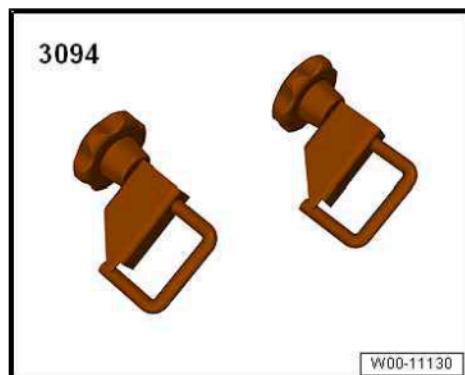
### Tightening torques

- ◆ ⇒ [Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24](#) ; Intake manifold; Exploded view - intake manifold

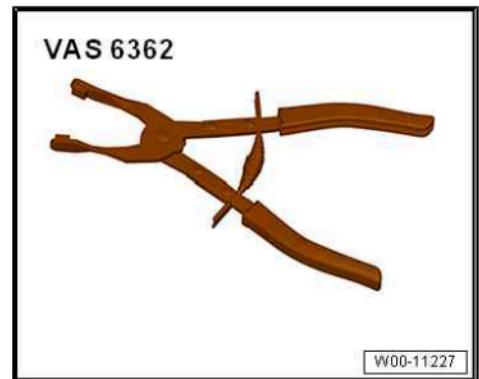
## 2.9 Removing and installing coolant valves

### Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-



- ◆ Hose clip pliers - VAS 6362-

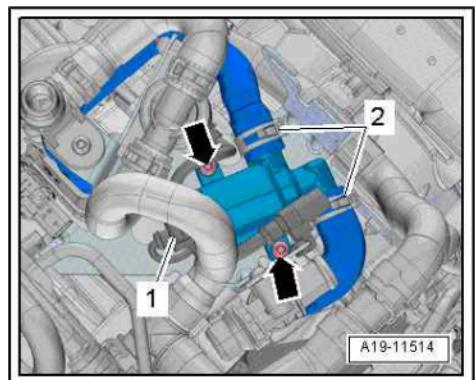


#### Removing

- Remove coolant pump for high-temperature circuit - V467-  
[⇒ page 101](#).

#### Coolant valve for electric drive - N565- :

- Clamp off coolant hoses using hose clamps up to 25 mm - 3094- , release hose clips -2- and disconnect hoses.
- Remove bolts -arrows- and unplug electrical connector -1-.



#### Solenoid for coolant circuit - N492- :

- Clamp off coolant hoses using hose clamps up to 25 mm - 3094- , release hose clips -1- and disconnect hoses.
- Remove bolts -arrows- and unplug electrical connector -2-.

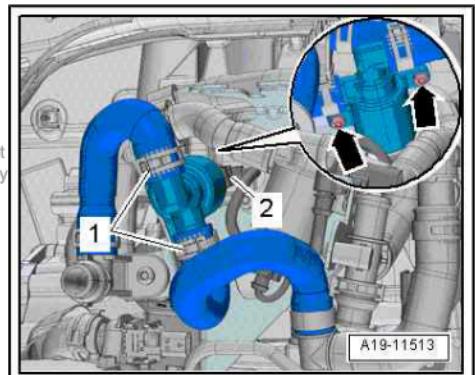
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Installation is carried out in the reverse order; note the following:



Note

*Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*



- Install coolant pump for high-temperature circuit - V467-  
[⇒ page 101](#).

- Check coolant level [⇒ page 88](#) .

#### Tightening torques

- ◆ [⇒ “2.2.4 Exploded view - electric coolant pump, pump unit, vehicles with hybrid drive”, page 94](#)

### 3 Coolant pipes

- ⇒ “3.1 Exploded view - coolant pipes”, page 108
- ⇒ “3.2 Removing and installing coolant pipes”, page 111

#### 3.1 Exploded view - coolant pipes

- ⇒ “3.1.1 Exploded view - coolant pipes (engine end)”, page 108
- ⇒ “3.1.2 Exploded view - coolant pipes, vehicles with hybrid drive”, page 110

##### 3.1.1 Exploded view - coolant pipes (engine end)



Note

The arrow markings on coolant pipes and on ends of hoses must align.

1 - Coolant hose

2 - Bolt

6 Nm

3 - Small coolant pipe

Removing and installing  
     ⇒ [page 112](#)

4 - Bolt

9 Nm

5 - O-ring

Renew

6 - Bolt

9 Nm

7 - O-ring

Renew

8 - Coolant hose

Lift retaining clip to detach  
      Connecting to radiator  
     ⇒ [page 119](#)

9 - Coolant pipe (front)

Removing and installing  
     ⇒ [page 111](#)

10 - Coolant hose

11 - Bolt

6 Nm

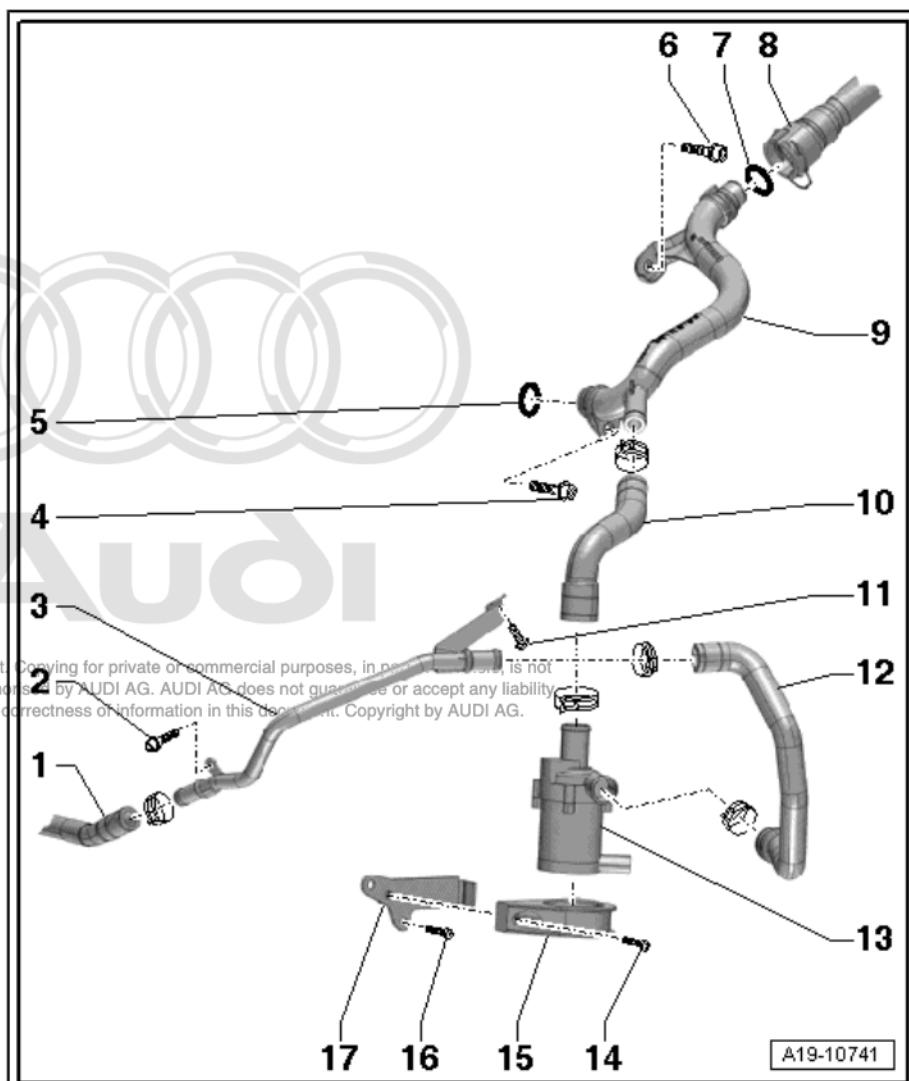
12 - Coolant hose

13 - Continued coolant circulation pump - V51-

⇒ [Item 2 \(page 92\)](#)

14 - Bolt

⇒ [Item 6 \(page 92\)](#)



15 - Bracket

- [⇒ Item 5 \(page 92\)](#)

16 - Bolt

- [⇒ Item 4 \(page 92\)](#)

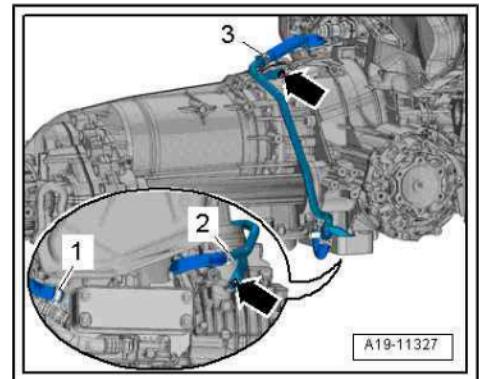
17 - Bracket

- [⇒ Item 3 \(page 92\)](#)

Vehicles with 8-speed automatic gearbox - coolant pipe (right-side) on gearbox

- Tighten bolts -arrows- to 9 Nm.

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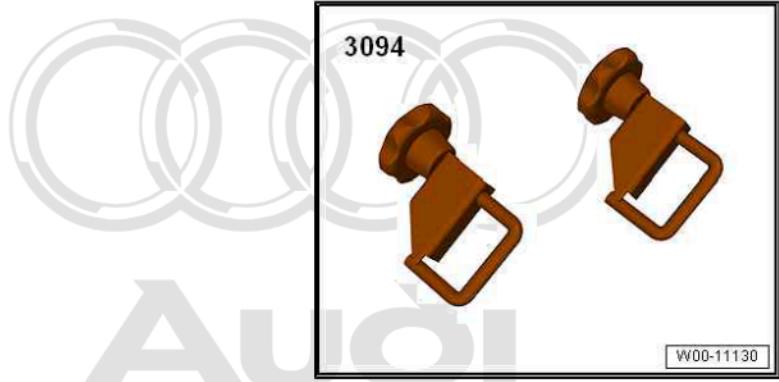
### 3.2 Removing and installing coolant pipes

- ⇒ "3.2.1 Removing and installing coolant pipe (front)",  
page 111
- ⇒ "3.2.2 Removing and installing small coolant pipe - vehicles  
without hybrid drive", page 112
- ⇒ "3.2.3 Removing and installing small coolant pipe - vehicles with  
hybrid drive", page 113
- ⇒ "3.2.4 Removing and installing coolant pipe (right-side) on  
gearbox - vehicles without hybrid drive, with 8-speed automatic  
gearbox", page 115
- ⇒ "3.2.5 Removing and installing coolant pipe (left-side) on gear-  
box - vehicles with hybrid drive", page 116

#### 3.2.1 Removing and installing coolant pipe (front)

Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-



- ◆ Hose clip pliers - VAS 6362-

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## Removing



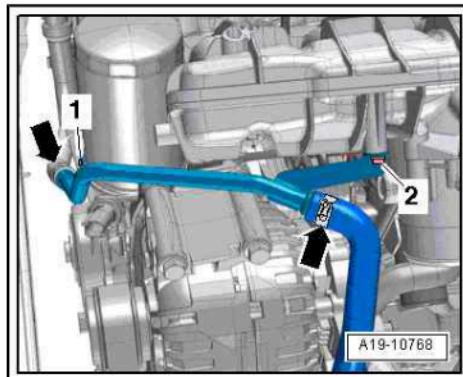
### Note

Place a cloth under coolant pipe to catch escaping coolant.

- Unscrew bolts -1- and -2- and swivel coolant pipe (front) upwards.
- Clamp off coolant hoses -arrows- with hose clamps up to 25 mm - 3094- and detach.

## Installing

Installation is carried out in reverse order; note the following:



### Note

Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ *Electronic parts catalogue*.

- Check coolant level ⇒ [page 88](#).

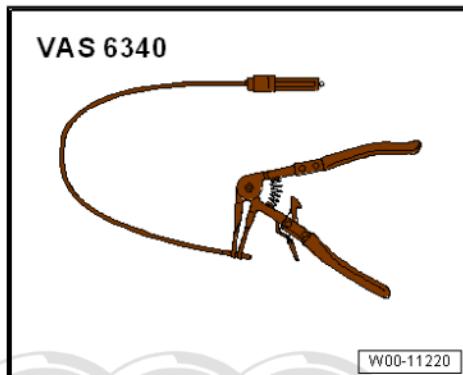
## Tightening torques

- ◆ ⇒ [“3.1 Exploded view - coolant pipes”, page 108](#)

### 3.2.2 Removing and installing small coolant pipe - vehicles without hybrid drive

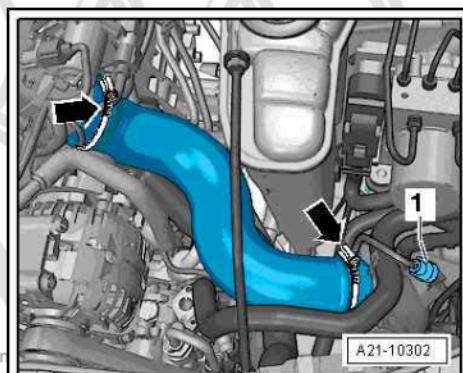
Special tools and workshop equipment required

- ◆ Hose clip pliers - VAS 6340-



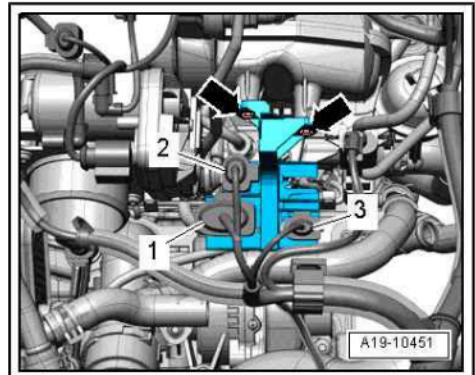
## Removing

- Drain coolant ⇒ [page 83](#).
- Release hose clips -arrows- and detach air hose.



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- Remove bolts -arrows- and detach electrical connectors -1 ... 3- from retainer.



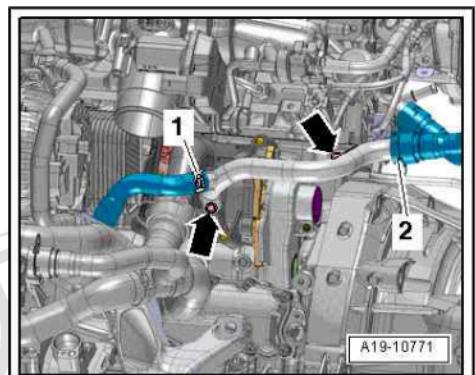
- Release hose clip -1-, lift retaining clip -2- and detach coolant hoses.
- Unscrew bolts -arrows- and detach small coolant pipe.

#### Installing

Installation is carried out in the reverse order; note the following:



- ◆ Fit new O-rings.
- ◆ Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .



- Connect coolant hose with plug-in connector [⇒ page 119](#) .



*Do not reuse coolant.*

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- Fill up with coolant [⇒ page 83](#) with respect to the correctness of information in this document. Copyright by AUDI AG.

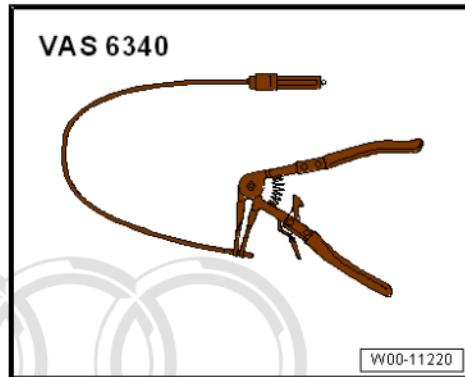
#### Tightening torques

- ◆ ⇒ “[3.1.1 Exploded view - coolant pipes \(engine end\)](#)”, [page 108](#)
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system

### 3.2.3 Removing and installing small coolant pipe - vehicles with hybrid drive

Special tools and workshop equipment required

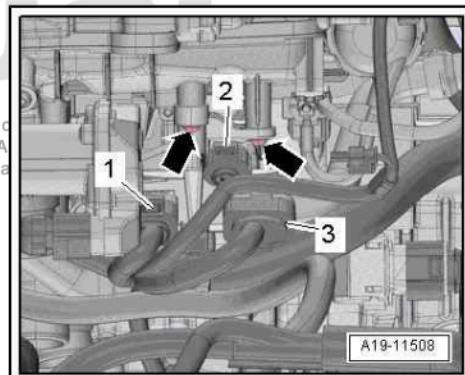
- ◆ Hose clip pliers - VAS 6340-



#### Removing

- Drain coolant [⇒ page 83](#).
- Remove throttle valve module - J338- [⇒ page 164](#).
- Remove bolts -arrows-.
- Detach electrical connectors -1, 2, 3- from bracket.

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- Release hose clip -1-, lift retaining clip -2- and detach coolant hoses.
- Unscrew bolts -arrows- and detach small coolant pipe.

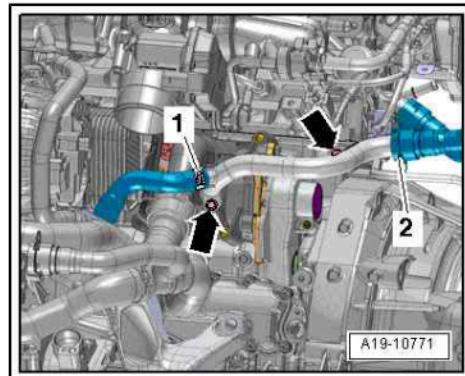
#### Installing

Installation is carried out in the reverse order; note the following:



#### Note

- ◆ Fit new O-rings.
- ◆ Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ *Electronic parts catalogue* .
- Install throttle valve module - J338- ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Removing and installing throttle valve module - J338- .
- Connect coolant hose with plug-in connector [⇒ page 119](#) .



#### Note

*Do not reuse coolant.*

- Fill up with coolant [⇒ page 83](#) .

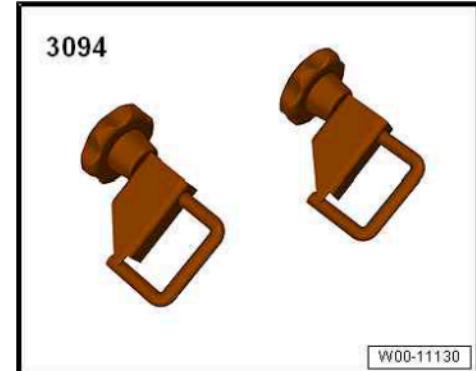
#### Tightening torques

- ◆ ⇒ "3.1.2 Exploded view - coolant pipes, vehicles with hybrid drive", [page 110](#)

### 3.2.4 Removing and installing coolant pipe (right-side) on gearbox - vehicles without hybrid drive, with 8-speed automatic gearbox

Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-



- ◆ Drip tray for workshop hoist - VAS 6208-



- ◆ Hose clip pliers - VAS 6362-



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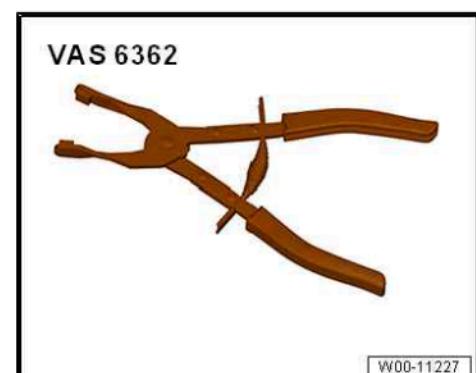
#### Removing

##### CAUTION

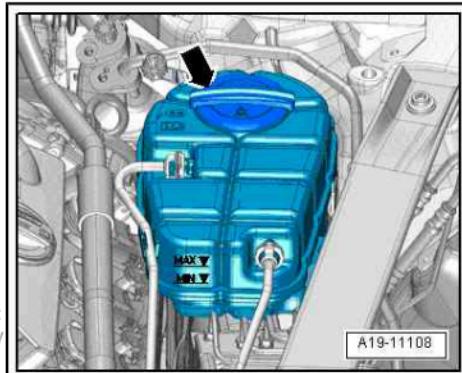
The cooling system is under pressure when the engine is hot.  
Risk of scalding due to hot steam and hot coolant.

Danger of scalding skin and other parts of the body.

- Put on protective gloves.
- Put on safety goggles.
- Cover filler cap on expansion tank with a cloth and open carefully to release pressure.



- Open filler cap -arrow- on coolant expansion tank.
- Remove noise insulation (rear) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Place drip tray for workshop hoist - VAS 6208- under connection.

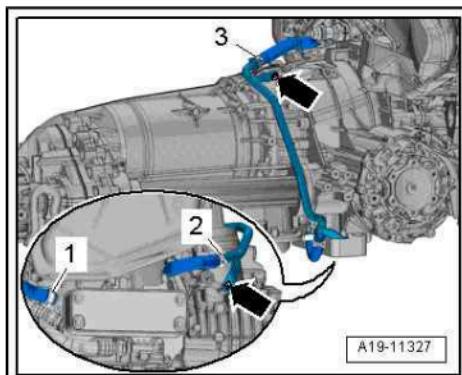


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- Clamp off coolant hose -1- with hose clamp -3094- .
- Remove bolts -arrows-.
- Clamp off coolant hose -3- using hose clamp -3094- , release hose clip and disconnect coolant hose from coolant pipe on right side of gearbox.
- Release hose clip -2- and detach coolant pipe going to wheel housing (right-side).

#### Installing

Installation is carried out in the reverse order; note the following:



#### Note

- ◆ Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .
- ◆ Do not reuse coolant.

- Fill up with coolant [⇒ page 83](#) .

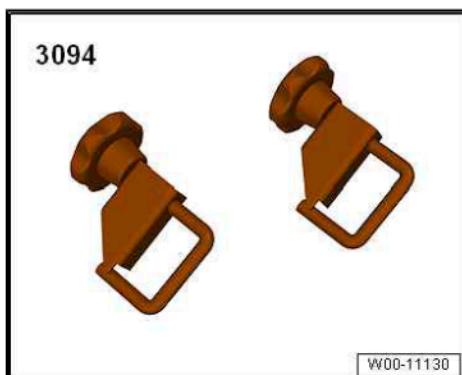
#### Tightening torques

- ◆ [⇒ Fig. ""Vehicles with 8-speed automatic gearbox - coolant pipe \(right-side\) on gearbox"" , page 109](#)
- ◆ [⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation](#)

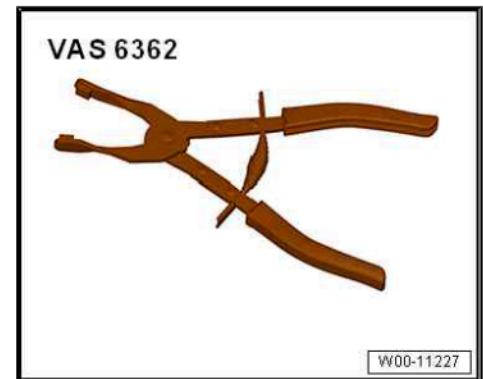
### 3.2.5 Removing and installing coolant pipe (left-side) on gearbox - vehicles with hybrid drive

#### Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-



- ◆ Hose clip pliers - VAS 6362-



### Removing

- Remove noise insulation (rear) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .



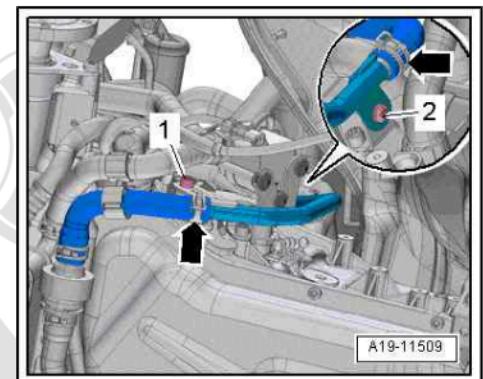
#### Note

*Place a cloth under coolant pipe to catch escaping coolant.*

- Clamp off coolant hoses using hose clamps up to 25 mm - 3094- , release hose clips -arrows- and disconnect hoses.
- Remove bolts -1 and 2- and detach coolant pipe from gearbox (left-side).

### Installing

Installation is carried out in the reverse order; note the following:



#### Note

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- ◆ *Fit new O-rings.*
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*

- Check coolant level [⇒ page 88](#) .

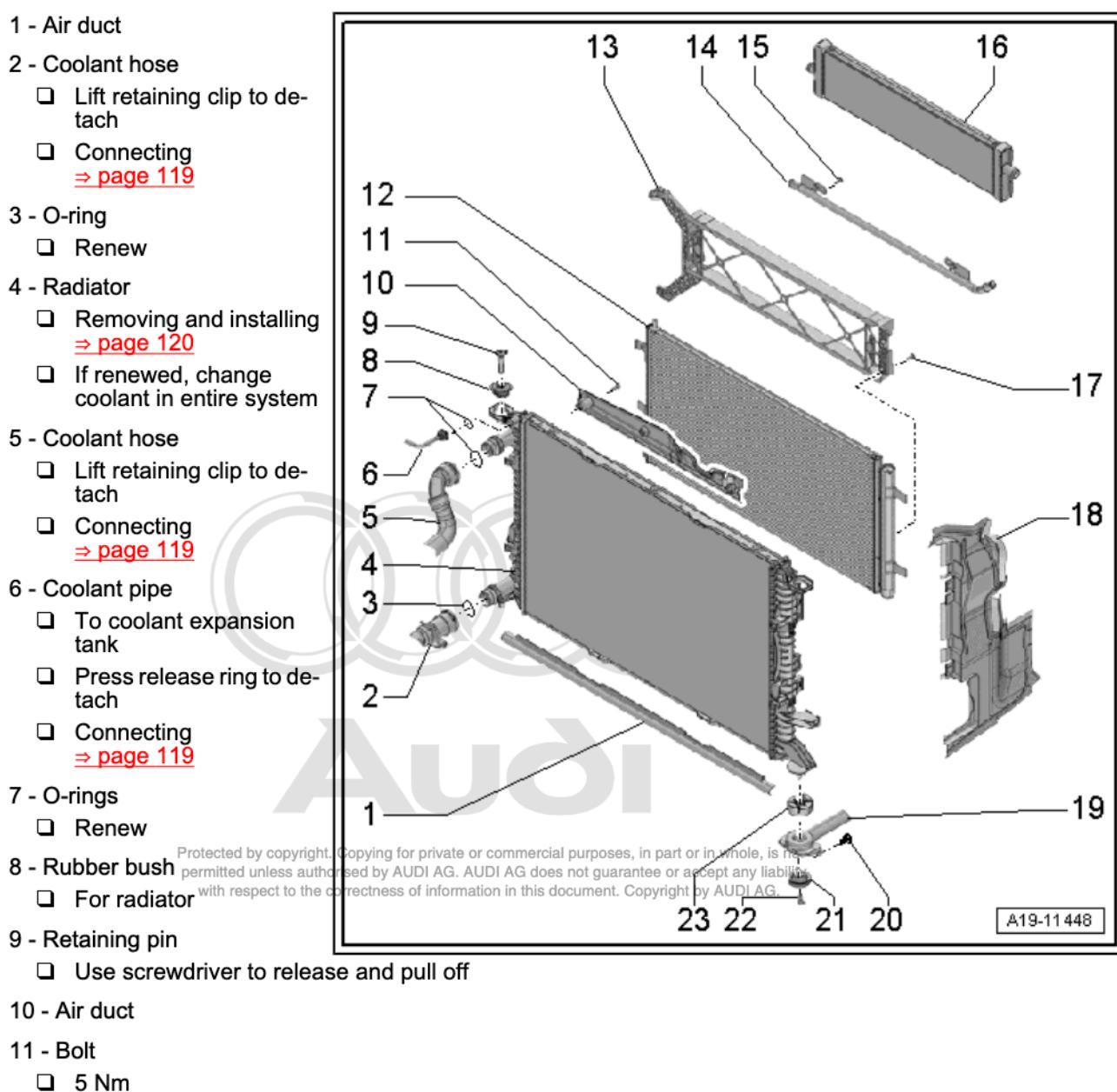
### Tightening torques

- ◆ [⇒ “3.1.2 Exploded view - coolant pipes, vehicles with hybrid drive”, page 110](#)
- ◆ [⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation](#)

## 4 Radiator/radiator fans

- ⇒ [“4.1 Exploded view - radiator/radiator fans”, page 118](#)
- ⇒ [“4.2 Exploded view - radiator cowl and radiator fans”, page 120](#)
- ⇒ [“4.3 Removing and installing radiator”, page 120](#)
- ⇒ [“4.4 Removing and installing radiator cowl”, page 124](#)
- ⇒ [“4.5 Removing and installing radiator fan V7 ”, page 127](#)
- ⇒ [“4.6 Removing and installing radiator fan control unit J293 / J671 ”, page 128](#)
- ⇒ [“4.7 Removing and installing auxiliary radiator”, page 128](#)

### 4.1 Exploded view - radiator/radiator fans



## 12 - Condenser

- Removing and installing ⇒ Heating, air conditioning; Rep. gr. 87 ; Refrigerant circuit; Removing and installing condenser

## 13 - Bracket

- For radiator for coolant circuit for power and control electronics for electric drive

## 14 - Coolant pipe

## 15 - Bolt

- 5 Nm

## 16 - Cooler

- For coolant circuit for power and control electronics for electric drive
- Removing and installing ⇒ [page 128](#)

## 17 - Bolt

- 8 Nm

## 18 - Air duct

## 19 - Radiator bracket

## 20 - Bolt

- 5 Nm

## 21 - Washer

## 22 - Bolt

- 4.5 Nm

## 23 - Rubber mounting

- For radiator

Connecting coolant hose with plug-in connector



Note

If damaged, renew retaining clip -4-.

- Remove old O-ring -2- from coolant hose -3-.
- Lightly lubricate new O-ring with coolant and fit O-ring in coolant hose.
- Press coolant hose onto connection -1- until it engages audibly.
- Press coolant hose in again and then pull to check that plug-in connector is correctly engaged.



## 4.2 Exploded view - radiator cowl and radiator fans

1 - Radiator fan control unit

- Radiator fan control unit  
- J293- with radiator fan control unit 2 - J671-
- Removing and installing  
[⇒ page 128](#)

2 - Bolt

- 3.5 Nm

3 - Bolt

- 5 Nm

4 - Radiator cowl

- Removing and installing  
[⇒ page 124](#)

5 - Radiator fan - V7-

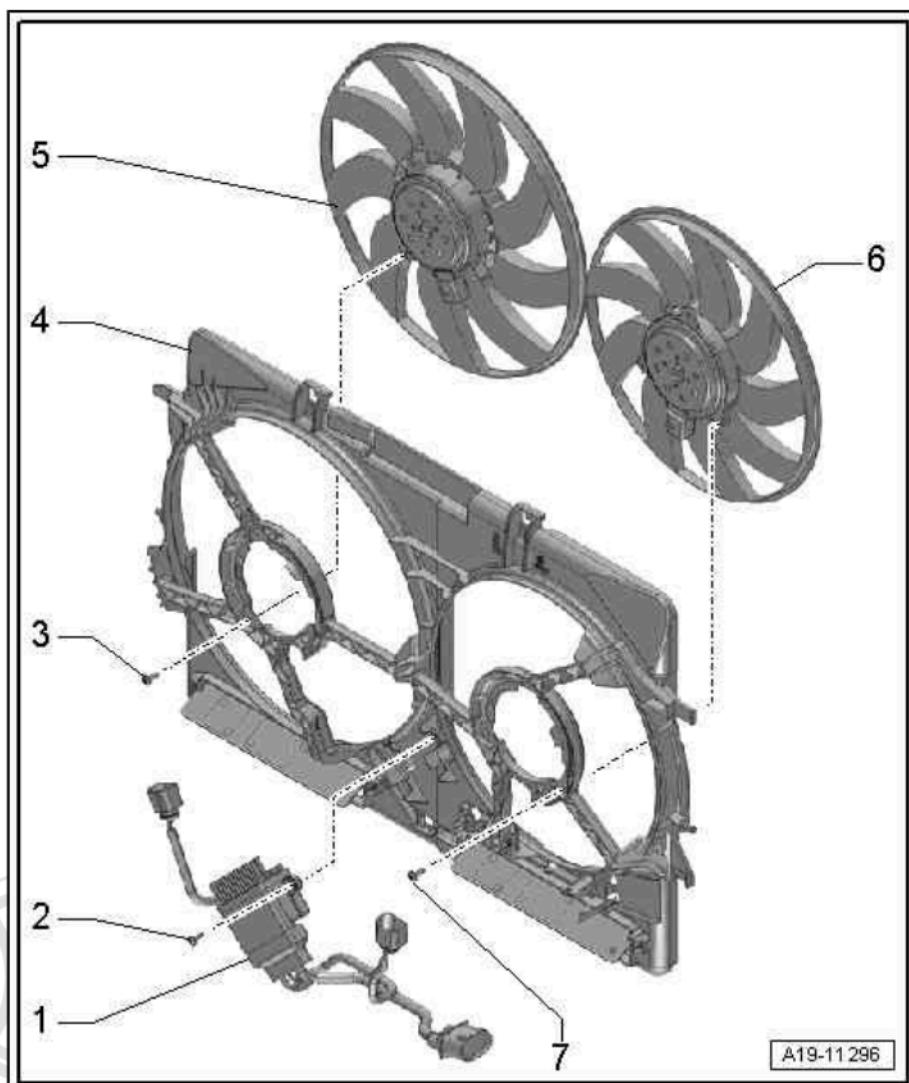
- Removing and installing  
[⇒ page 127](#)

6 - Radiator fan 2 - V177-

- Removing and installing  
[⇒ page 127](#)

7 - Bolt

- 5 Nm



A19-11 296

## 4.3 Removing and installing radiator



### Note

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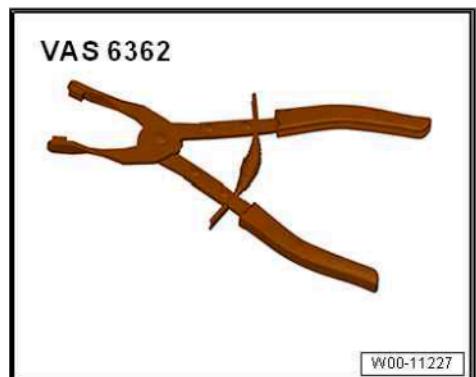
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Special tools and workshop equipment required

- ◆ Drip tray for workshop hoist - VAS 6208-



- ◆ Hose clip pliers - VAS 6362-



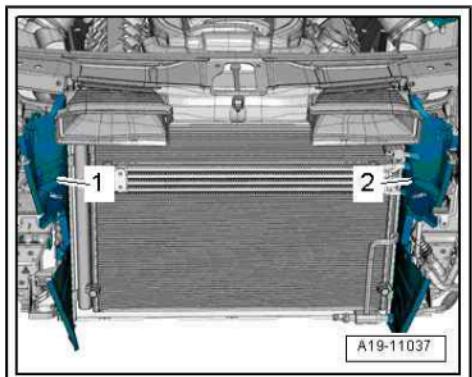
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- Remove noise insulation (front) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove impact absorber (front) ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing impact absorber .
- Unclip air ducts -1 and 2-.



#### Note

*Air duct (left-side) remains in installation position on vehicles with hybrid drive.*

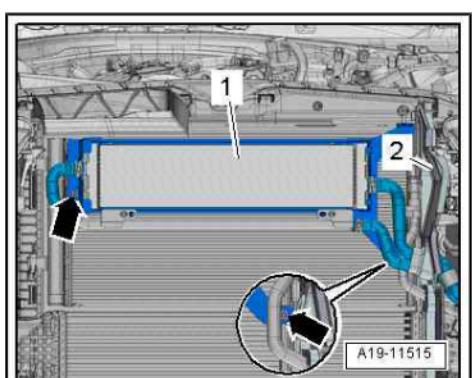


Vehicles with hybrid drive:

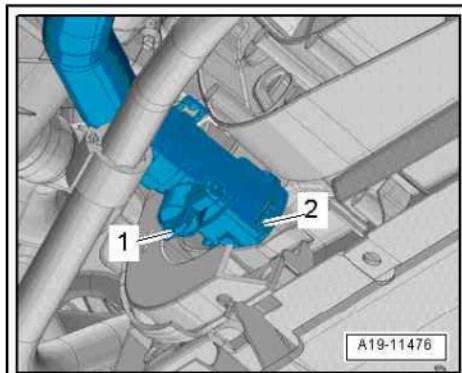
- Remove bolts -arrows-.
- Detach radiator (front) -1- upwards and swivel to one side with air duct -2-.

Continued for all vehicles:

- Remove charge air cooler [⇒ page 136](#) .



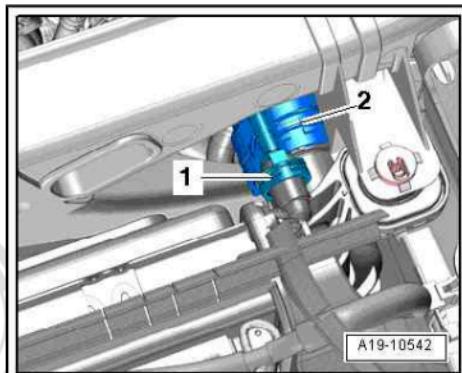
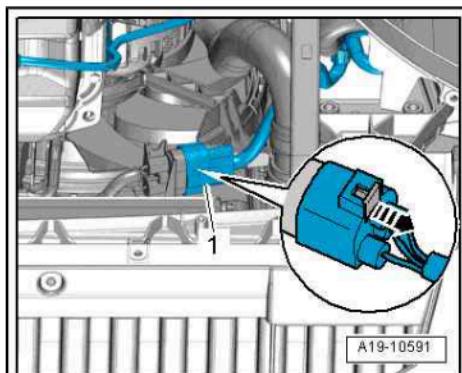
- Place drip tray for workshop hoist - VAS 6208- beneath engine.
- Open drain screw -1- at connection and drain off coolant; then detach connection -2- from radiator (lift retaining clip).



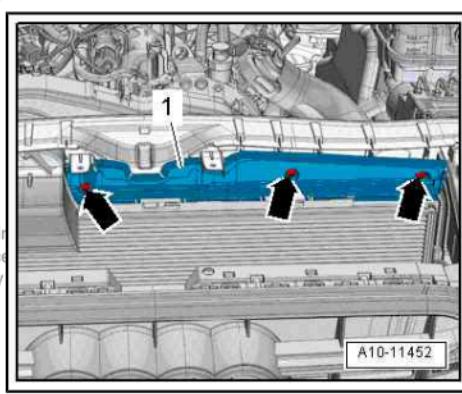
### **CAUTION**

Risk of injury as the radiator fans may start up automatically.

- Unplug electrical connectors:
- Unplug electrical connector -1- for radiator fan (push retainer to the rear -arrow- and press down release catch).
- Lift retaining clips -1- and -2- and detach connection from radiator.

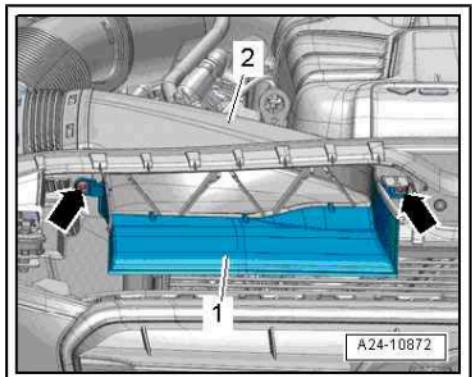


- Remove bolts -arrows- and detach air duct -1-.

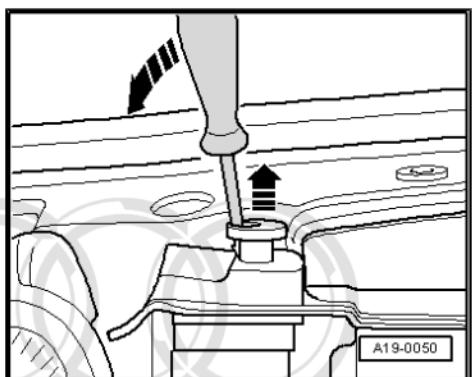


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- Remove bolts -arrows- and detach air duct -1-.



- Release retaining pins for radiator on both sides and pull out upwards -arrows-.



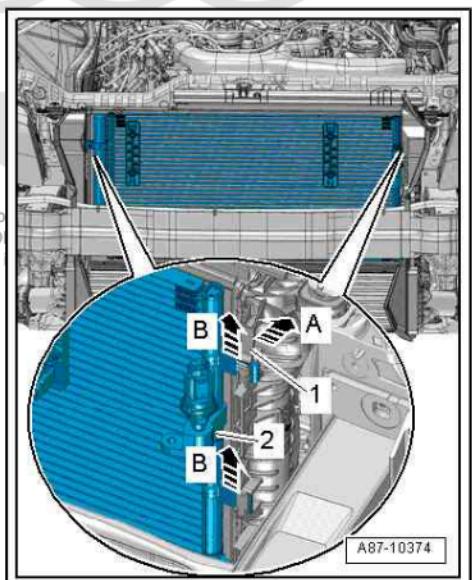
- Have a second mechanic release retaining clips -1- in direction of -arrow A- and lift condenser -2- out of mountings on radiator -arrows B-.

 **NOTICE**

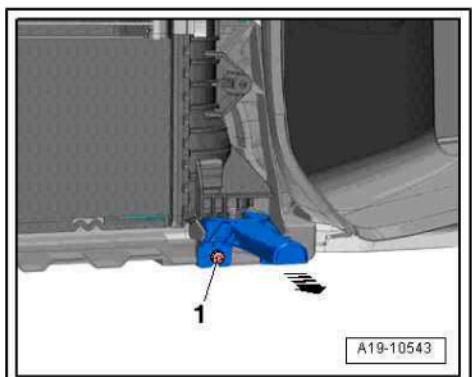
Danger of damage to refrigerant lines and hoses when detaching and pivoting condenser.

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- Do NOT stretch, kink or bend refrigerant lines and hoses.
- Pivot condenser forwards with pipes/hoses attached.
- Detach radiator.



- Remove bolts -1- on both sides and detach radiator bracket with radiator from lock carrier -arrow-.
- Detach radiator.





- Press locking tabs on left and right sides of radiator cowl together -arrow- and lift radiator cowl off radiator.

#### Installing

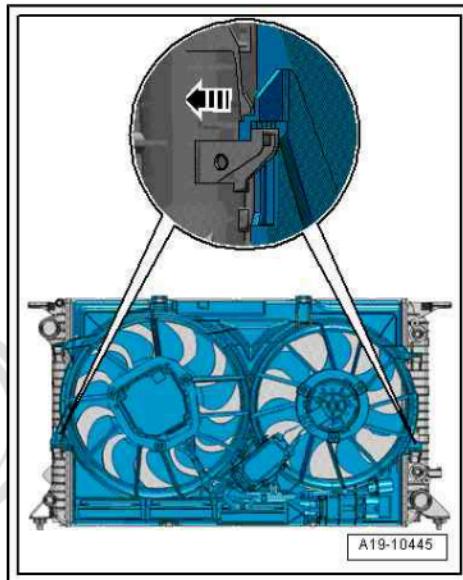
Installation is carried out in reverse order; note the following:



#### Note

*If there are slight impressions on the fins, refer to ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00 ; Repair notes; Installing radiators and condensers .*

- Electrical connections and routing ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Connect coolant hose with plug-in connector ⇒ [page 119](#) .
- Install charge air cooler ⇒ [page 136](#) .



#### Note

*Do not reuse coolant.*

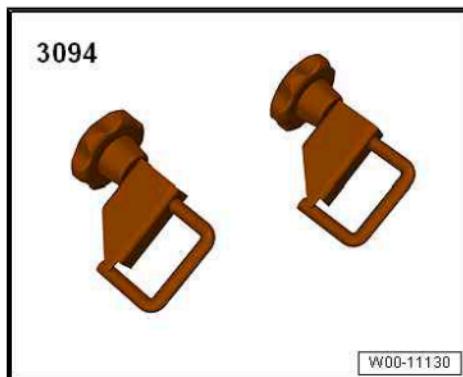
- Fill up with coolant ⇒ [page 83](#)
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- ◆ ⇒ "4.1 Exploded view - radiator/radiator fans", page 118
- ◆ ⇒ "3.1 Exploded view - air cleaner housing", page 151
- ◆ ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Exploded view - impact bar
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

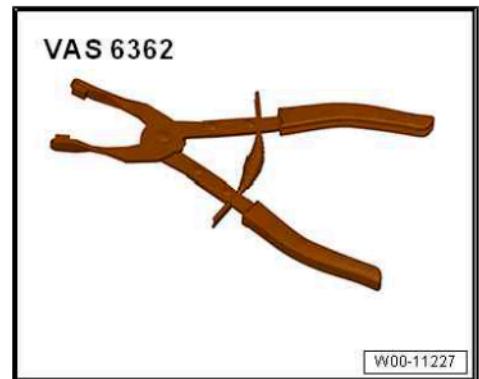
## 4.4 Removing and installing radiator cowl

Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094- for vehicles with hybrid drive



- ◆ Hose clip pliers - VAS 6362- for vehicles with hybrid drive



### Removing

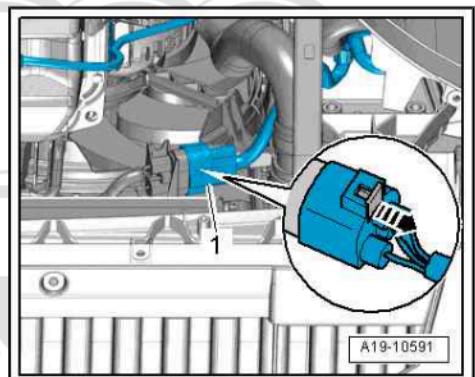
- Remove lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .
- Drain coolant [⇒ page 83](#) .

#### CAUTION

Risk of injury as the radiator fans may start up automatically.

- Unplug electrical connectors:

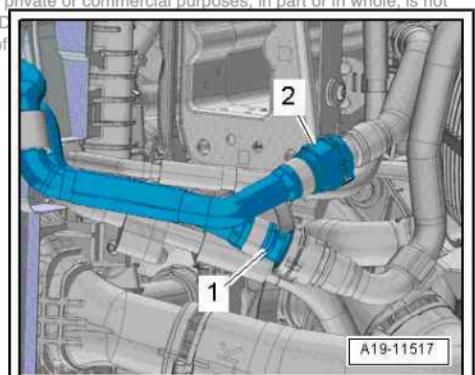
- Unplug electrical connector -1- for radiator fan (push retainer to the rear -arrow- and press down release catch).
- Remove closure plate for bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .



### Vehicles with hybrid drive:

- Remove air intake grille (front left) ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .
- Clamp off coolant hoses -1, 2- with hose clamps up to 25 mm - 3094- .

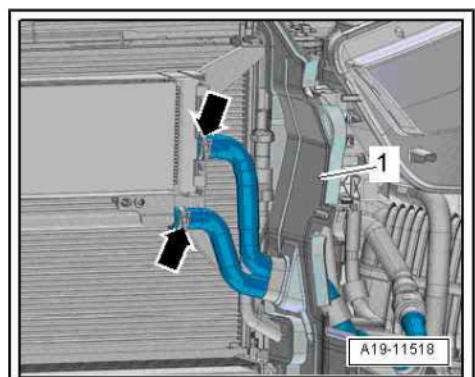
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#### Note

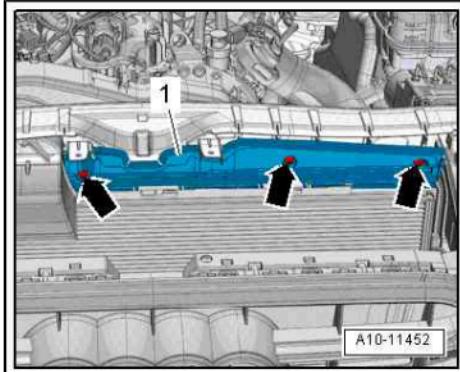
Place a cloth underneath to catch escaping coolant.

- Detach coolant hoses; to do so, release hose clips -arrows- and guide through air duct -1-.

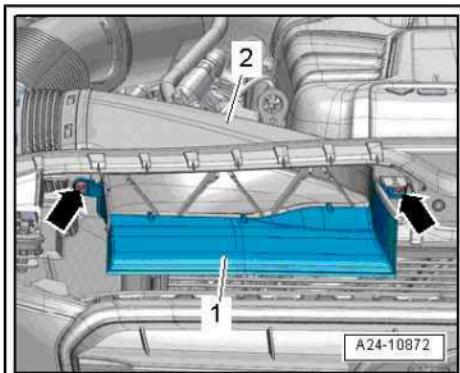


Continued for all vehicles:

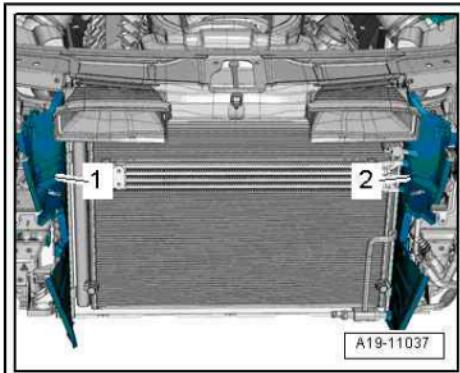
- Remove bolts -arrows- and detach air duct -1-.



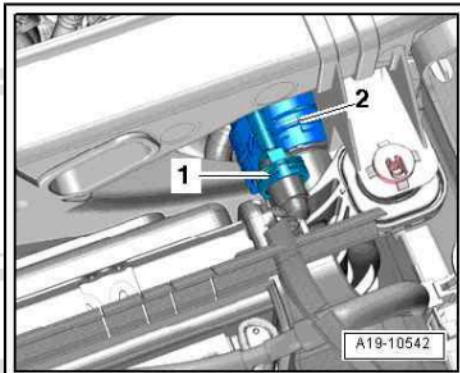
- Remove bolts -arrows- and detach air duct -1-.



- Unclip air ducts -1- and -2-.

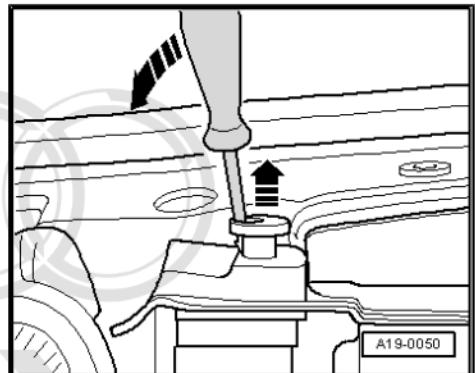


- Release retaining clips -1 and 2- and detach connection from radiator.



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- Release retaining pins for radiator on both sides and pull out upwards -arrows-.
- Press radiator slightly towards front.



- Press locking tabs on left and right sides of radiator cowl together -arrow- and lift radiator cowl off radiator.

#### Installing

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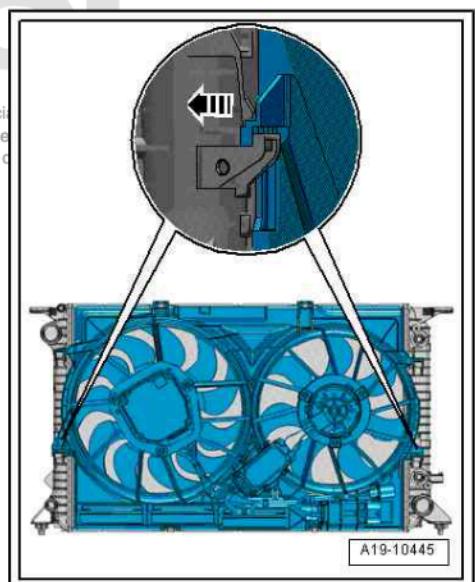
- Installation is carried out in reverse order, note the following:
- Install air duct [page 151](#).
  - Install lock carrier cover, bumper cover and closure plate for bumper cover (front) ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Exploded view - bumper cover .
  - Connect coolant hose with plug-in connector [page 119](#).



Note

*Do not reuse coolant.*

- Fill up with coolant [page 83](#).



## 4.5 Removing and installing radiator fan - V7-

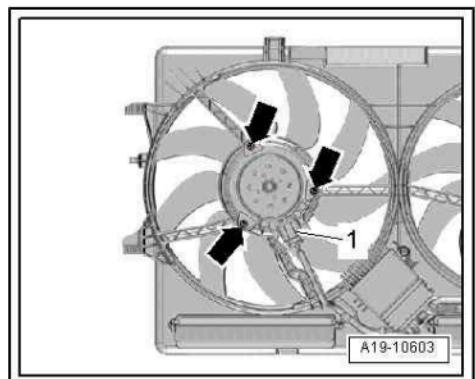
#### Removing



Note

*Fit all cable ties in the original positions when installing.*

- Remove radiator cowl [page 124](#).
- Unplug electrical connector -1-.
- Remove bolts -arrows- and detach radiator fan - V7- (left-side).



- Unplug electrical connector -1-.
- Remove bolts -arrows- and detach radiator fan 2 - V177- (right-side).

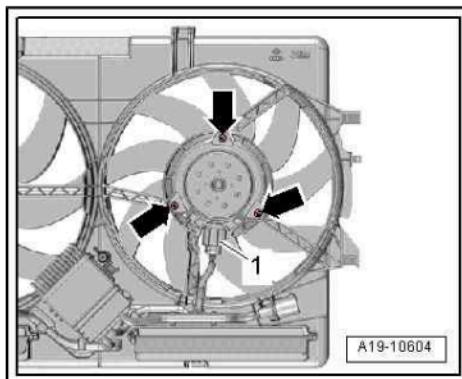
#### Installing

Installation is carried out in reverse order; note the following:

- Install radiator cowl [⇒ page 124](#).

#### Tightening torques

- ◆ [⇒ "4.2 Exploded view - radiator cowl and radiator fans", page 120](#)



## 4.6 Removing and installing radiator fan control unit -J293- / -J671-

#### Removing

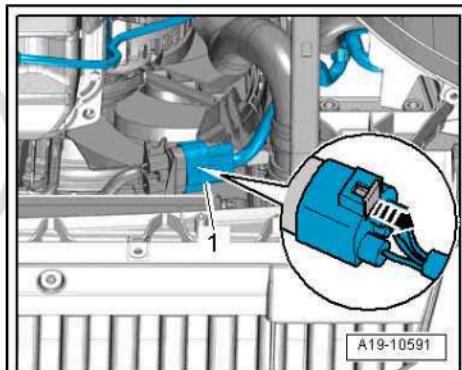
- Remove noise insulation (front) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Vehicles with torque reaction support: remove cross member for torque reaction support [⇒ page 44](#) .

#### CAUTION

Risk of injury as the radiator fans may start up automatically.

- Unplug electrical connectors:

- Take electrical connector -1- for radiator fan out of bracket and unplug connector (push retainer to the rear -arrow- and press down release catch).
- Move clear electrical wiring harness going to radiator fan control unit.
- Unplug electrical connectors -2- and -3-.
- Unscrew bolt Part number: 06A903011A and **remove radiator fan control unit -1-**.



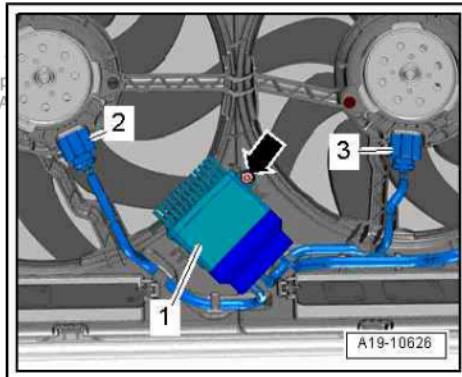
#### Installing

Installation is carried out in reverse order; note the following:

- Vehicles with torque reaction support: install cross member for torque reaction support [⇒ page 44](#) .

#### Tightening torques

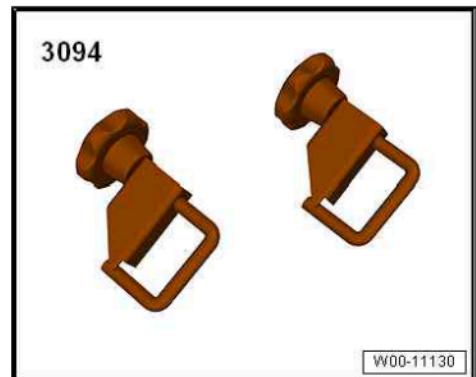
- ◆ [⇒ "4.2 Exploded view - radiator cowl and radiator fans", page 120](#)
- ◆ [⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation](#)



## 4.7 Removing and installing auxiliary radiator

Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-

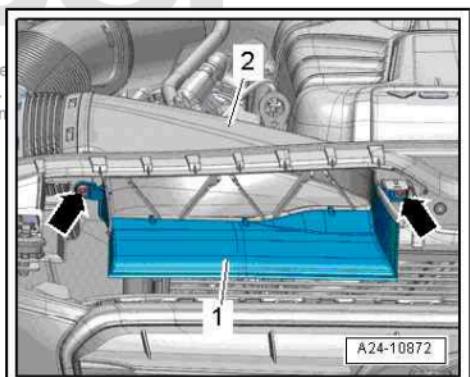


- ◆ Hose clip pliers - VAS 6362-



### Removing

- Remove lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .
- Remove bolts -arrows- and detach air duct -1-.



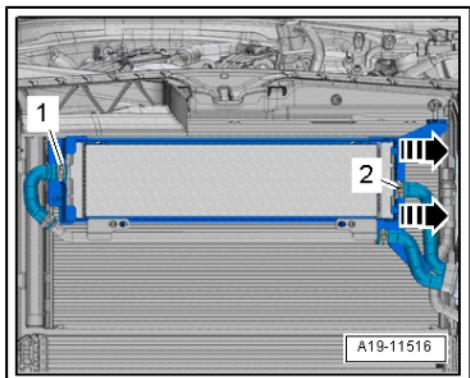
*Place a cloth underneath to catch escaping coolant.*

- Clamp off coolant hoses using hose clamps, up to 25 mm - 3094- , release hose clips -1 and 2- and disconnect hoses.
- Release fasteners -arrows- and detach radiator.

### Installing

Installation is carried out in the reverse order; note the following:

- Install lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .



### Tightening torques

- ◆ ⇒ “4.1 Exploded view - radiator/radiator fans”, page 118
- ◆ ⇒ “3.1 Exploded view - air cleaner housing”, page 151

## 21 – Turbocharging/supercharging

### 1 Turbocharger

- ⇒ “1.1 Exploded view - turbocharger”, page 130
- ⇒ “1.2 Removing and installing turbocharger”, page 130
- ⇒ “1.3 Checking vacuum unit for turbocharger”, page 132

#### 1.1 Exploded view - turbocharger

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Turbocharger; Exploded view - turbocharger .

#### 1.2 Removing and installing turbocharger

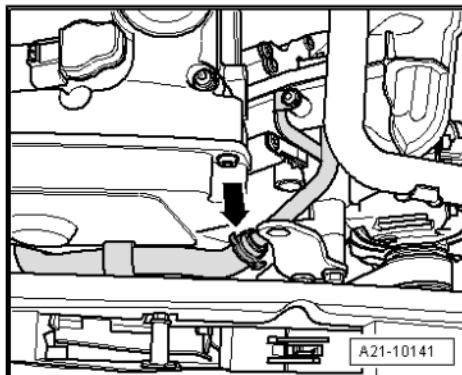
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- Observe rules for cleanliness ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00 ; Repair notes; Rules for cleanliness .
- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Remove air cleaner housing ⇒ [page 152](#) .
- Drain coolant ⇒ [page 83](#) .
- Remove catalytic converter ⇒ [page 184](#) .
- Disconnect coolant hose -arrow-.

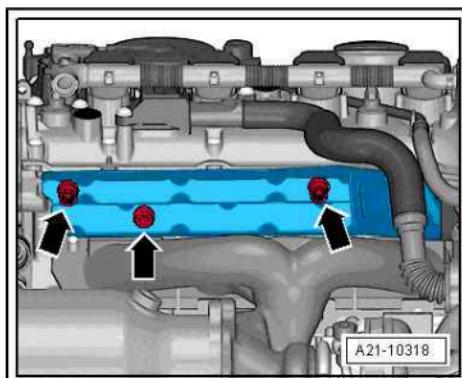


##### Note

The installation position is shown in the following illustrations with the engine removed.

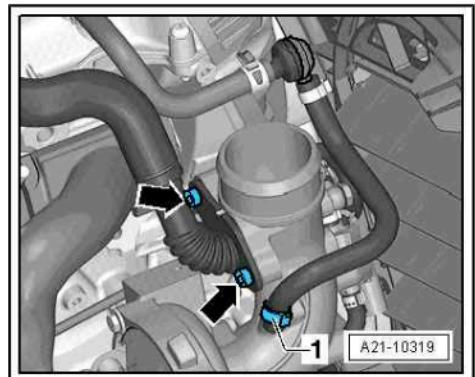


- Remove heat shield -arrows-.

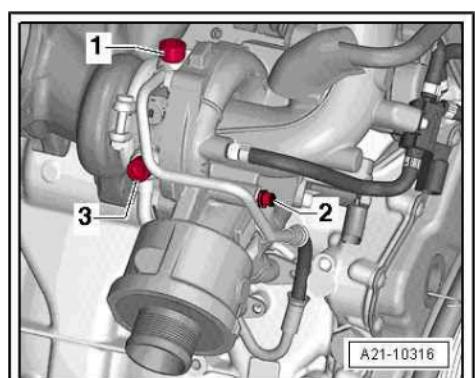


#### Turbocharger version 1:

- Remove bolts -arrows- and detach crankcase breather system from turbocharger.
- Disconnect hose -1- from turbocharger.

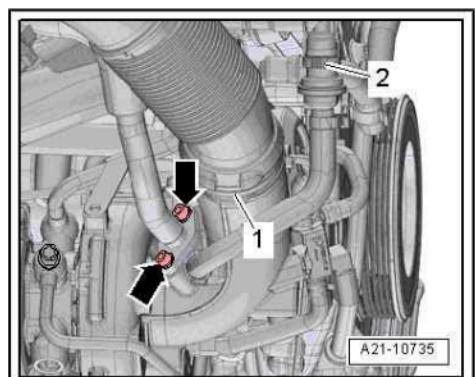


- Unscrew bolts -1 and 2- and move oil supply line clear to one side.
- Unscrew bolt -3- and move coolant pipe clear to one side.

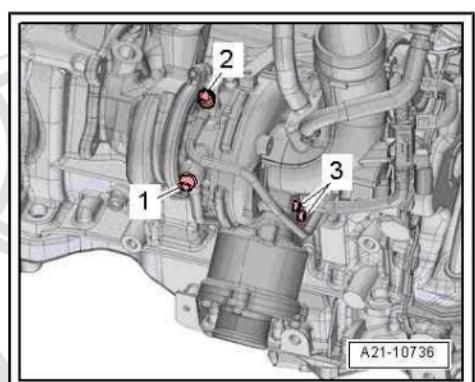


#### Turbocharger version 2:

- Remove bolts -arrows- and detach crankcase breather system from turbocharger.
- Press release tabs and disconnect hose -2-.
- Release hose clip -1-. Detach air pipe.



- Remove banjo bolts -1, 2- and bolts -3- and move pipes to one side.



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- Unplug electrical connector -arrow- for Lambda probe - G39- and Lambda probe heater - Z19- and move wiring clear.

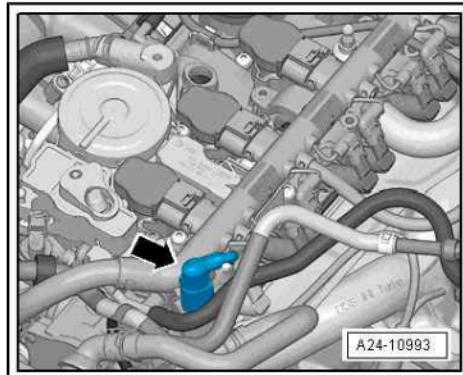
Continued for all vehicles:

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Turbocharger; Removing and installing turbocharger .

#### Installing

Additional work:

- Install catalytic converter ⇒ [page 184](#) .
- Align the exhaust system so it is free of stress ⇒ [page 182](#) .
- Install air cleaner housing ⇒ [page 152](#) .
- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .



#### Tightening torques

- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system

## 1.3 Checking vacuum unit for turbocharger

#### Procedure

- Remove lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .
- Remove bolts -arrows- and detach air duct -2-.

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Turbocharger; Checking vacuum unit for turbocharger .

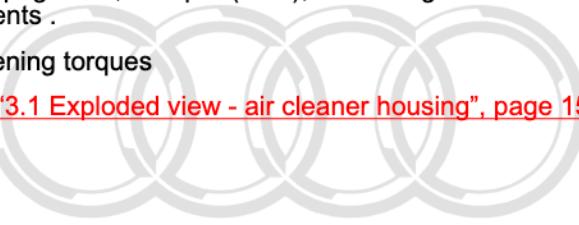
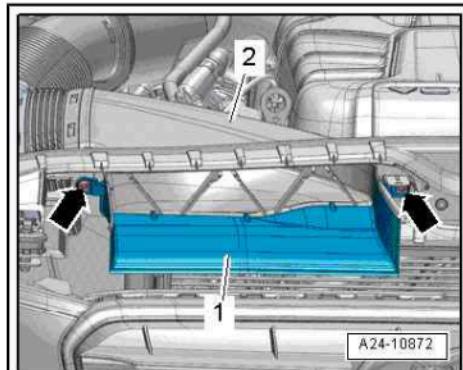
#### Installing

Additional work:

- Install lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .

#### Tightening torques

- ◆ ⇒ ["3.1 Exploded view - air cleaner housing", page 151](#)



# Audi

## 2 Charge air system

- ⇒ "2.1 Exploded view - charge air system", page 133
- ⇒ "2.2 Exploded view - hose connections for charge air system", page 136
- ⇒ "2.3 Removing and installing charge air cooler", page 136
- ⇒ "2.4 Removing and installing charge pressure sender G31", page 139
- ⇒ "2.5 Checking charge air system for leaks", page 140

### 2.1 Exploded view - charge air system

- ⇒ "2.1.1 Exploded view - charge air system, vehicles without hybrid drive", page 133
- ⇒ "2.1.2 Exploded view - charge air system, vehicles with hybrid drive", page 135

#### 2.1.1 Exploded view - charge air system, vehicles without hybrid drive

##### 1 - Charge air cooler

- Removing and installing  
⇒ [page 136](#)

##### 2 - Hose clip

##### 3 - Air hose

- To turbocharger
- Must be free of oil or grease when installing

##### 4 - Hose clip

##### 5 - Hose clip

##### 6 - Air hose

- To intake manifold
- Must be free of oil or grease when installing

##### 7 - Hose clip

##### 8 - O-ring

- Renew

##### 9 - Charge pressure sender - G31-

- Removing and installing  
⇒ [page 139](#)

##### 10 - Bolt

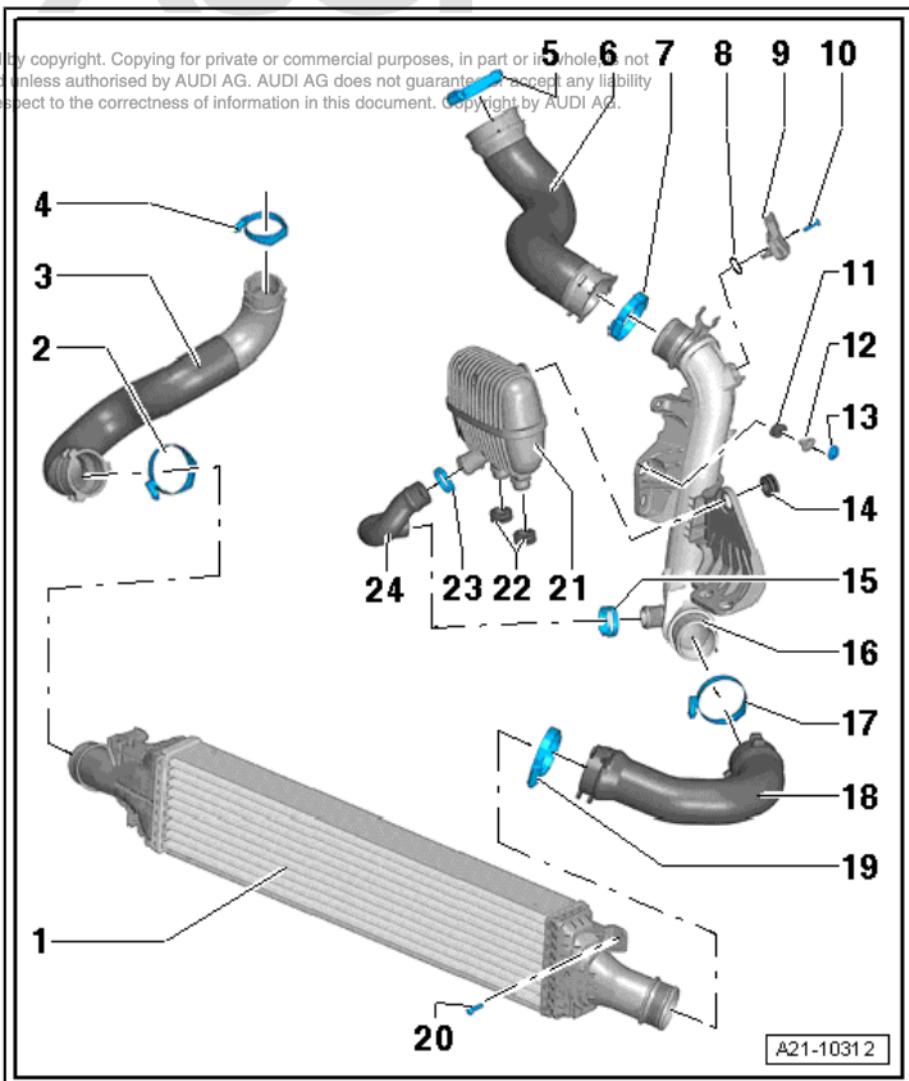
- 5 Nm

##### 11 - Rubber grommet

##### 12 - Bush

##### 13 - Nut

- 9 Nm



14 - Rubber grommet

15 - Hose clip

16 - Air pipe

17 - Hose clip

18 - Air hose

- From charge air cooler
- Must be free of oil or grease when installing

19 - Hose clip

20 - Bolt

- 7 Nm

21 - Resonator

22 - Rubber grommet

23 - Hose clip

24 - Air hose

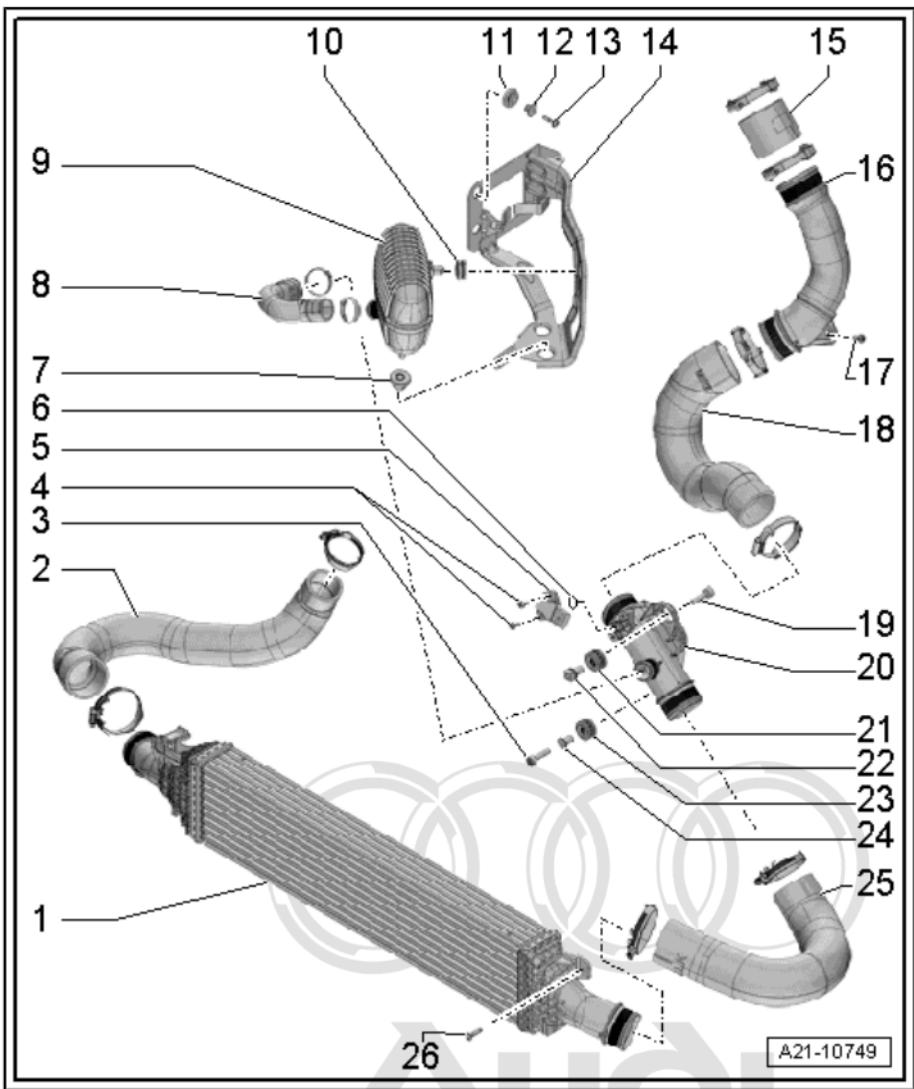
- To resonator
- Must be free of oil or grease when installing



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## 2.1.2 Exploded view - charge air system, vehicles with hybrid drive

- 1 - Charge air cooler
  - Removing and installing  
⇒ [page 137](#)
- 2 - Air hose
  - To turbocharger
  - Must be free of oil or grease when installing
- 3 - Bolt
  - 23 Nm
- 4 - Bolts
  - 9 Nm
- 5 - Charge pressure sender - G31-
  - Removing and installing  
⇒ [page 139](#)
- 6 - O-ring
  - Renew
- 7 - Rubber grommet
- 8 - Air hose
  - To resonator
  - Must be free of oil or grease when installing
- 9 - Resonator
- 10 - Rubber grommet
- 11 - Rubber grommet
- 12 - Spacer
- 13 - Bolt
  - 9 Nm
- 14 - Bracket
- 15 - Air hose
  - To intake manifold
  - Must be free of oil or grease when installing
- 16 - Air duct
- 17 - Bolt
  - 9 Nm
- 18 - Air hose
- 19 - Bolt
  - 23 Nm



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- 20 - Air pipe
- 21 - Rubber grommet
- 22 - Spacer
- 23 - Rubber grommet
- 24 - Spacer
- 25 - Air hose
  - From charge air cooler
  - Must be free of oil or grease when installing
- 26 - Bolt
  - 7 Nm



## 2.2 Exploded view - hose connections for charge air system

All components are described in ⇒ Servicing 4-cylinder engine,

1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system;

Exploded view - hose connections for charge air system  
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## 2.3 Removing and installing charge air cooler

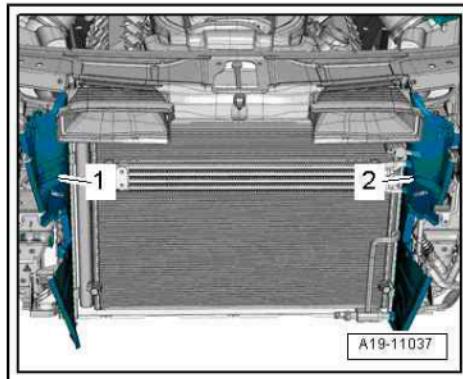
⇒ “2.3.1 Removing and installing charge air cooler - vehicles without hybrid drive”, page 136

⇒ “2.3.2 Removing and installing charge air cooler - vehicles with hybrid drive”, page 137

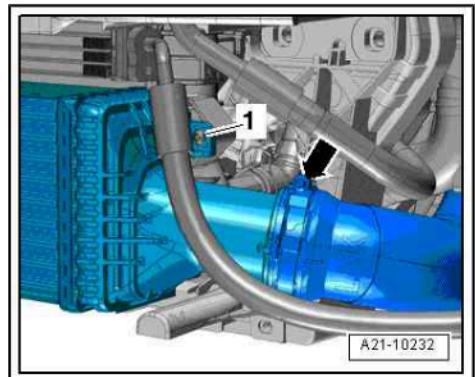
### 2.3.1 Removing and installing charge air cooler - vehicles without hybrid drive

#### Removing

- Remove closure plate at bumper cover and lock carrier cover  
⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front);  
Removing and installing attachments .
- Unclip air ducts -1 and 2-.



- Release hose clip -arrow- and detach air hose from charge air cooler.
- Remove bolt -1-.



- Release hose clip -1- and detach air hose from charge air cooler.
- Push catch down -arrow A- and move top of charge air cooler slightly in direction of -arrow B-.
- Disengage and detach charge air cooler upwards.

#### Installing

Installation is carried out in reverse order; note the following:

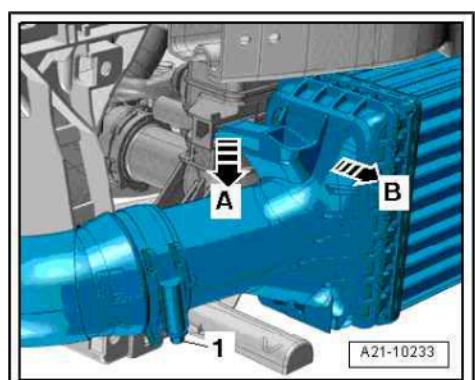
#### Note

- ◆ If there are slight impressions on the fins, refer to ⇒ *Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00; Repair notes; Installing radiators and condensers* .
- ◆ Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ *Electronic parts catalogue* .

- Install lock carrier cover and closure plate for bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .

#### Tightening torques

- ◆ ⇒ “[2.1.1 Exploded view - charge air system, vehicles without hybrid drive](#)”, page 133
- ◆ ⇒ *Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21; Charge air system; Exploded view - hose connections for charge air system*



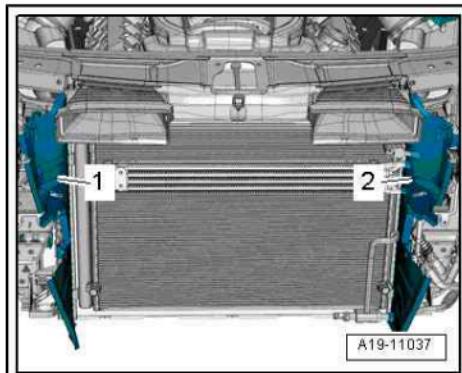
### 2.3.2 Removing and installing charge air cooler - vehicles with hybrid drive

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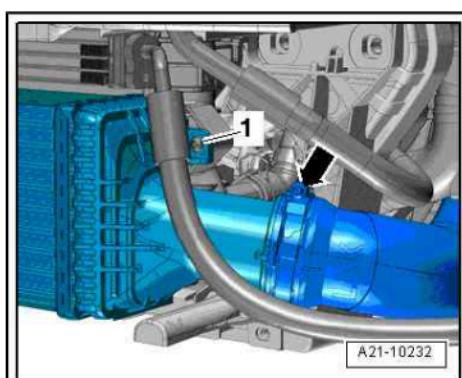
#### Removing

- Remove closure plate at bumper cover, lock carrier cover and air intake grille (left and right) ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .

- Unclip air duct -1-.



- Release hose clip -arrow- and detach air hose from charge air cooler.
- Remove bolt -1-.



- Release hose clip -1- and detach air hose from charge air cooler.
- Push catch down -arrow A- and move top of charge air cooler slightly in direction of -arrow B-.
- Disengage charge air cooler upwards, move clear at air duct (left-side) and detach.

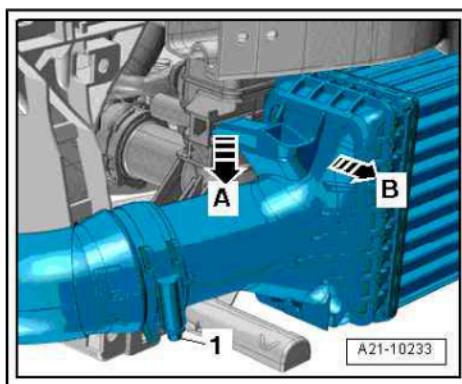
#### Installing

Installation is carried out in reverse order; note the following:



#### Note

- ◆ If there are slight impressions on the fins, refer to ⇒ *Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00 ; Repair notes; Installing radiators and condensers .*
  - ◆ Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ *Electronic parts catalogue .*
  - Install lock carrier cover, closure plate for bumper cover and air intake grille ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .
- Tightening torques** Right. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for third party content or its accuracy. © AUDI AG
- ◆ ⇒ ["2.12 Exploded view - charge air system, vehicles with hybrid drive", page 135](#)
  - ◆ ⇒ *Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system*



## 2.4 Removing and installing charge pressure sender - G31-

⇒ “2.4.1 Removing and installing charge pressure sender G31 - vehicles without hybrid drive”, page 139

⇒ “2.4.2 Removing and installing charge pressure sender G31 - vehicles with hybrid drive”, page 139

### 2.4.1 Removing and installing charge pressure sender - G31- - vehicles without hybrid drive

#### Removing

- Unplug electrical connector -1-.
- Unscrew bolts -arrows- and pull charge pressure sender - G31- out of air pipe.

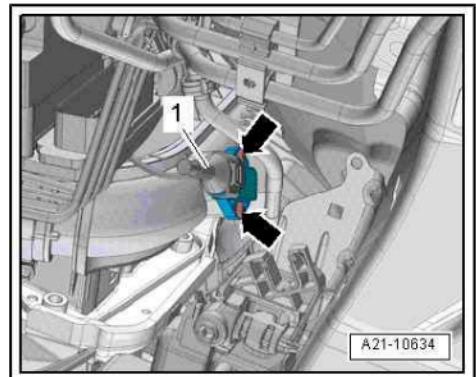
#### Installing

Installation is carried out in reverse order; note the following:



Note

*Fit new O-ring.*



#### Tightening torques

◆ ⇒ “2.1.1 Exploded view - charge air system, vehicles without hybrid drive”, page 133

### 2.4.2 Removing and installing charge pressure sender - G31- - vehicles with hybrid drive

#### Removing

- Remove wheel spoiler (front left) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front) .
- Unplug electrical connector -1-.
- Unscrew bolts -arrows- and remove charge pressure sender - G31- .

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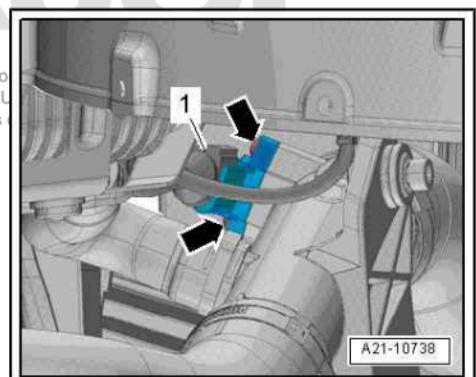
#### Installing

Installation is carried out in reverse order; note the following:



Note

*Fit new O-ring.*



#### Tightening torques

◆ ⇒ “2.1.2 Exploded view - charge air system, vehicles with hybrid drive”, page 135

◆ Wheel spoiler ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front)



## 2.5 Checking charge air system for leaks

All procedures are described in ⇒ Servicing 4-cylinder engine,  
1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system;  
Checking charge air system for leaks .



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## 24 – Mixture preparation - injection

### 1 Injection system

⇒ "1.1 Overview of fitting locations - injection system",  
 page 141

⇒ "1.2 Checking fuel system for leaks", page 149

#### 1.1 Overview of fitting locations - injection system

Overview of fitting locations - engine compartment

1 - Secondary air pump motor  
 - V101-

- Fitting location  
[⇒ page 143](#)
- Exploded view  
[⇒ "3.1 Exploded view - secondary air system",  
 page 189](#)

2 - Right electrohydraulic engine mounting solenoid valve - N145-

- Depending on equipment and version
- Fitting location  
[⇒ page 143](#)

3 - Air mass meter - G70-

- Exploded view  
[⇒ "3.1 Exploded view - air cleaner housing",  
 page 151](#)

4 - Ignition coil 1 with output stage - N70-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system

5 - Ignition coil 2 with output stage - N127-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system

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6 - Ignition coil 3 with output stage - N291-

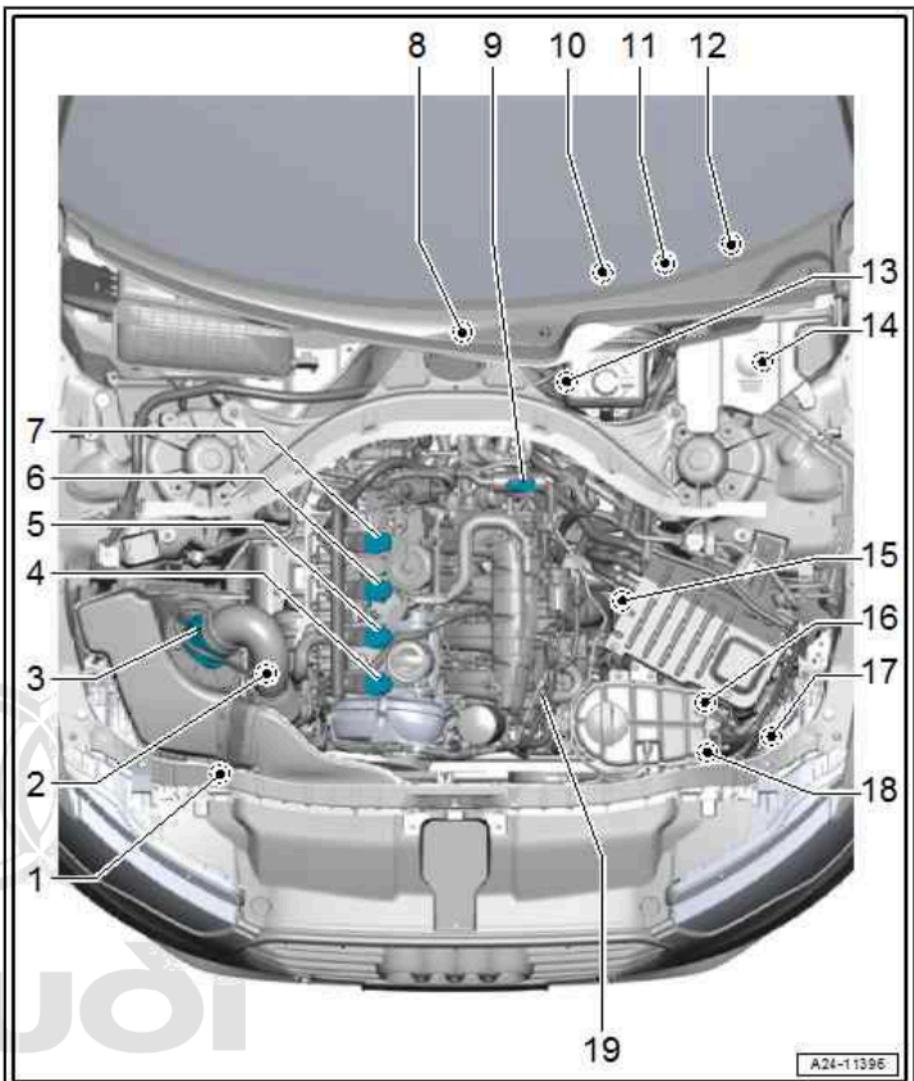
- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system

7 - Ignition coil 4 with output stage - N292-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system

8 - Auxiliary hydraulic pump 1 for gearbox oil - V475-

- For vehicles with hybrid drive



A24-11396

- Fitting location [⇒ page 144](#)

9 - Pressure sensor for activated charcoal filter system - G804-

- For vehicles with hybrid drive

10 - Accelerator position sender - G79- and accelerator position sender 2 - G185-

- Fitting location [⇒ page 143](#)

11 - Brake light switch - F-

- Fitting location [⇒ page 143](#)

Vehicles with hybrid drive are additionally fitted with brake pedal position sender - G100-

12 - Clutch position sender - G476-

- For vehicles with manual gearbox

- Fitting location [⇒ page 143](#)

13 - Brake servo pressure sensor - G294-

- For vehicles with hybrid drive

- Fitting location [⇒ page 144](#)

14 - Engine control unit - J623-

- Removing and installing [⇒ "9.1 Removing and installing engine/motor control unit J623 ", page 172](#)

15 - Left electrohydraulic engine mounting solenoid valve - N144-

- Left-side only depending on equipment and version

- Fitting location [⇒ page 143](#)

16 - Continued coolant circulation pump - V51-

- Exploded view [⇒ "3.1.1 Exploded view - coolant pipes \(engine end\)", page 108](#)

17 - Coolant pump for low-temperature circuit - V468-

- For vehicles with hybrid drive

- Fitting location [⇒ page 144](#)

18 - Charge pressure sender - G31-

- Exploded view [⇒ "2.1 Exploded view - charge air system", page 133](#)

19 - Brake servo vacuum pump - V469-

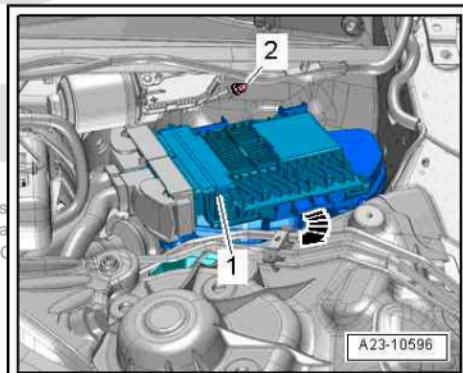
- For vehicles with hybrid drive

- Fitting location [⇒ page 144](#)

Fitting location of engine control unit - J623-

- In electronics box (plenum chamber)

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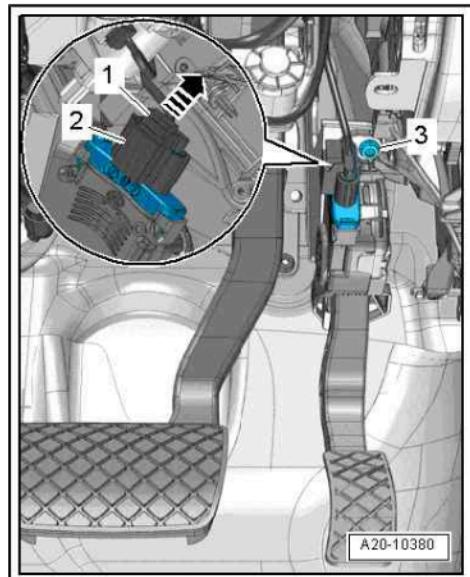
Fitting location of accelerator position sender - G79- / accelerator position sender 2 - G185-

- ◆ Integrated in accelerator pedal module



*The accelerator position sender - G79- and accelerator position sender 2 - G185- are integrated in the accelerator pedal module and cannot be renewed individually.*

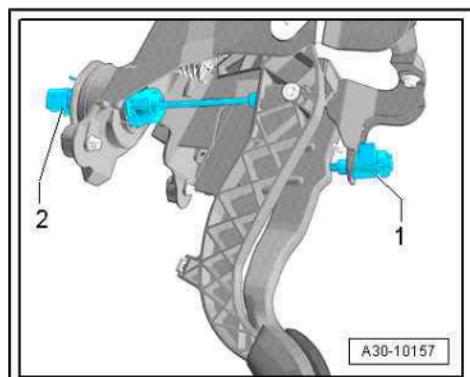
Exploded view ⇒ Fuel supply system, petrol engines; Rep. gr. 20 ; Accelerator mechanism; Exploded view - accelerator pedal module



Fitting location of brake light switch - F- / clutch position sender - G476-

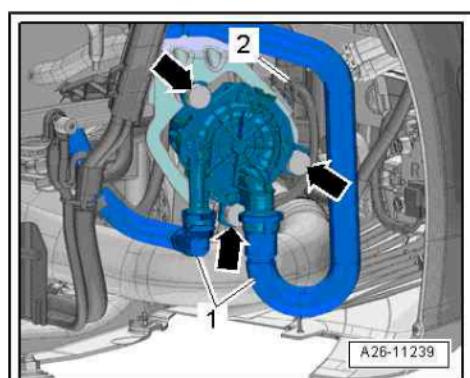
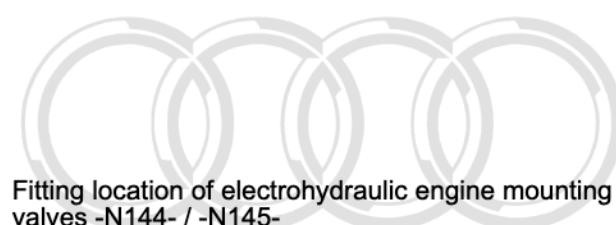
- 1 - Brake light switch - F-
- 2 - Clutch position sender - G476- for vehicles with manual gearbox

Removing and installing brake light switch - F- ⇒ Brake system; Rep. gr. 45 ; Sensors; Removing and installing brake light switch



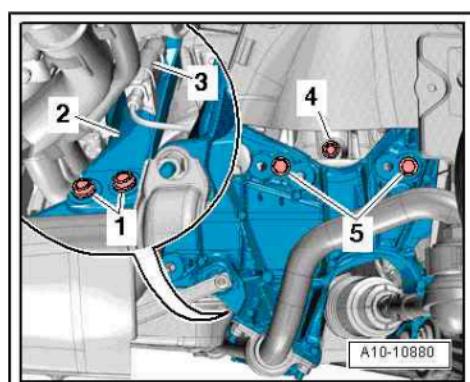
Fitting location of secondary air pump motor - V101-

- ◆ In front right wheel housing behind liner



Fitting location of electrohydraulic engine mounting solenoid valves -N144- / -N145-

- ◆ -Item 3- integrated in engine mountings on both sides

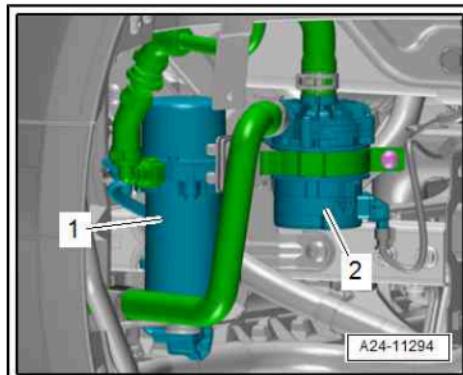


Fitting location of coolant pump for low-temperature circuit - V468- , brake servo vacuum pump - V469-

- ◆ In left wheel housing behind liner

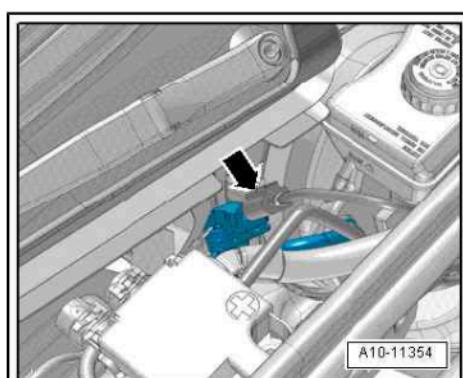
1 - Brake servo vacuum pump - V469-

2 - Coolant pump for low-temperature circuit - V468-



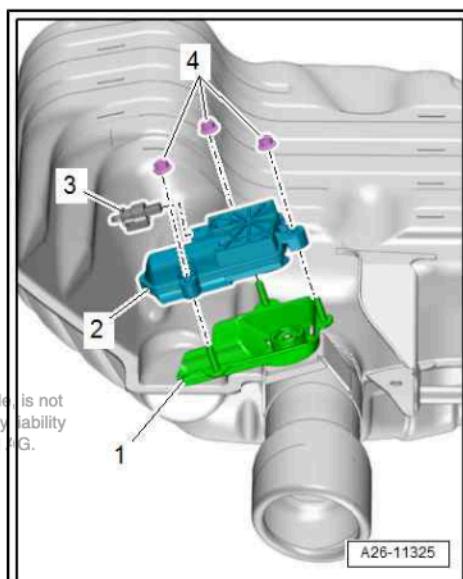
Fitting location of brake servo pressure sensor - G294-

- ◆ On left side of plenum chamber -arrow-

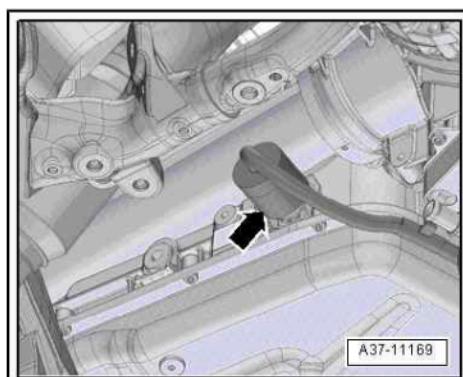


Fitting location of exhaust flap control unit - J883-

- ◆ -Item 2- on rear silencer tailpipe

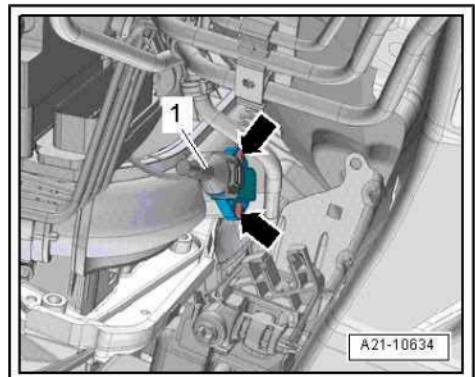


Fitting location of auxiliary hydraulic pump 1 for gearbox oil - V475-



Fitting location of charge pressure sender - G31-

- ◆ -Item 1- at air pipe (front left)



Overview of fitting locations - engine (view from left side)

1 - Valve for oil pressure control - N428-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches; Exploded view - oil pressure switches/oil pressure control

2 - Continued coolant circulation pump - V51-

- Not fitted on all versions
- Exploded view  
⇒ "3.1.1 Exploded view - coolant pipes (engine end)", page 108

3 - Coolant temperature sender - G62-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Exploded view - coolant pump/thermostat

4 - Oil pressure switch - F22-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches; Exploded view - oil pressure switches/oil pressure control

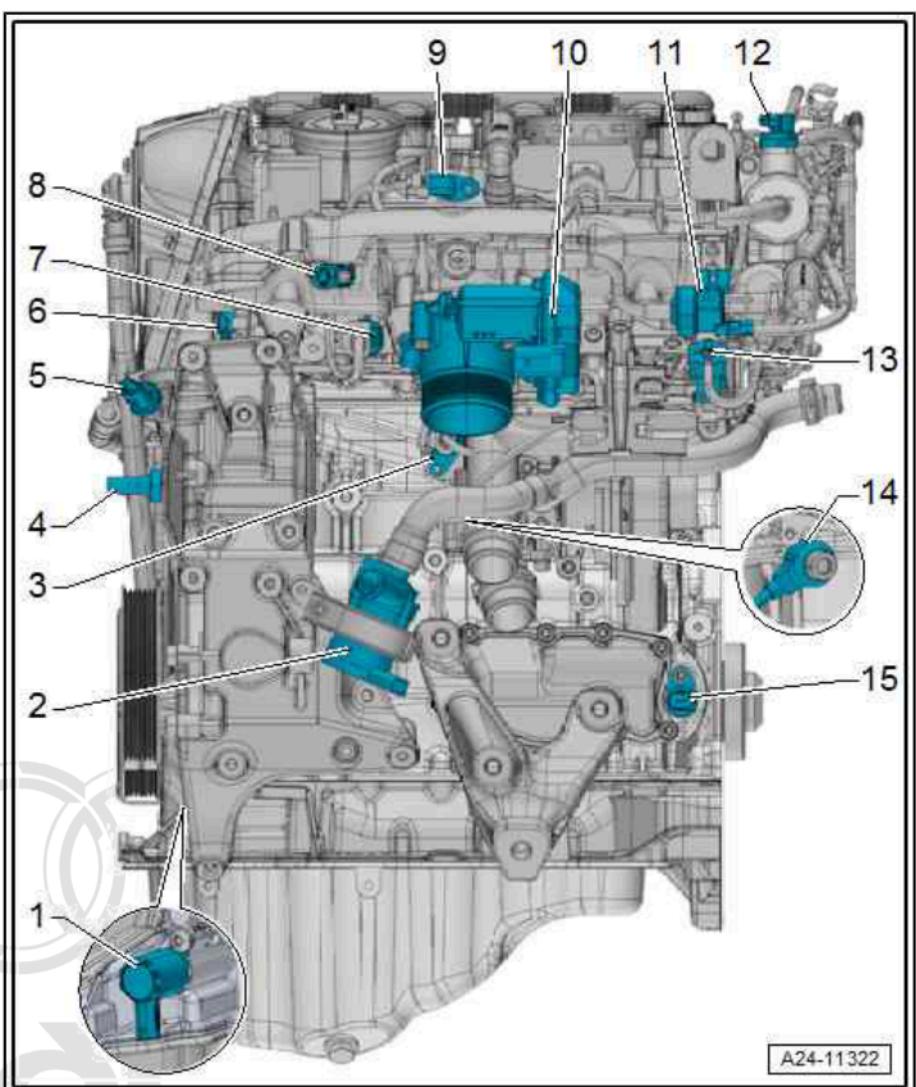
5 - Oil pressure switch for reduced oil pressure - F378-

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- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches; Exploded view - oil pressure switches/oil pressure control

6 - Intake manifold flap potentiometer - G336-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Exploded view - intake manifold





7 - Fuel pressure sender - G247-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors;  
Exploded view - fuel rail with injectors

8 - Intake air temperature sender - G42-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold;  
Exploded view - intake manifold

9 - Hall sender - G40-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system;  
Exploded view - ignition system

10 - Throttle valve module - J338-

- Including throttle valve drive (electric throttle operation) - G186- , angle sender for throttle valve drive - G187- and angle sender 2 for throttle valve drive - G188-
- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold;  
Exploded view - intake manifold

11 - Activated charcoal filter solenoid valve 1 - N80-

12 - Fuel metering valve - N290- or fuel pressure regulating valve - N276-

- Fuel metering valve - N290- or fuel pressure regulating valve - N276- may be fitted, depending on version
- Integrated in high-pressure pump

13 - Intake manifold flap valve - N316-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold;  
Exploded view - intake manifold

14 - Knock sensor 1 - G61-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system;  
Exploded view - ignition system

15 - Engine speed sender - G28-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system;  
Exploded view - ignition system

Overview of fitting locations - engine (view from right side)



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1 - Lambda probe after catalytic converter - G130- and Lambda probe heater 1 after catalytic converter - Z29-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Lambda probe; Exploded view - Lambda probe

2 - Lambda probe - G39- and Lambda probe heater - Z19-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Lambda probe; Exploded view - Lambda probe

3 - Actuator 8 for camshaft adjustment - F373- (for cylinder No. 4)

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

4 - Actuator 7 for camshaft adjustment - F372- (for cylinder No. 4)

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

5 - Actuator 5 for camshaft adjustment - F370- (for cylinder No. 3)

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

6 - Actuator 6 for camshaft adjustment - F371- (for cylinder No. 3)

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

7 - Actuator 4 for camshaft adjustment - F369- (for cylinder No. 2)

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

8 - Actuator 3 for camshaft adjustment - F368- (for cylinder No. 2)

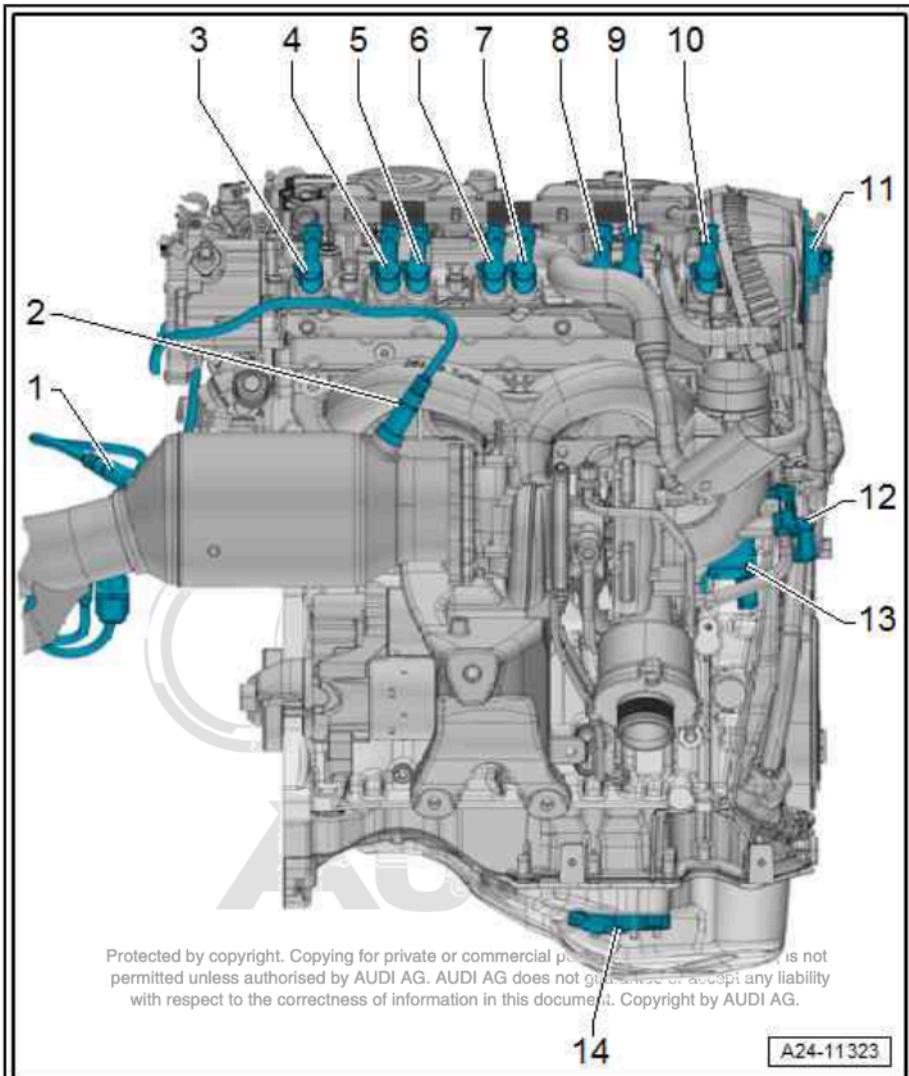
- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

9 - Actuator 1 for camshaft adjustment - F366- (for cylinder No. 1)

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

10 - Actuator 2 for camshaft adjustment - F367- (for cylinder No. 1)

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear



A24-11323

11 - Camshaft control valve 1 - N205-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Timing chain cover; Exploded view - timing chain cover

12 - Charge pressure control solenoid valve - N75-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Turbocharger; Exploded view - turbocharger

13 - Turbocharger air recirculation valve - N249-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Turbocharger; Exploded view - turbocharger

14 - Oil level and oil temperature sender - G266-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Sump/oil pump; Exploded view - sump/oil pump

Overview of fitting locations - engine/gearbox (view from rear)

1 - Coolant pump for high-temperature circuit - V467-

- For vehicles with hybrid drive
- Exploded view  
⇒ "2.2.4 Exploded view - electric coolant pump, pump unit, vehicles with hybrid drive", page 94

2 - Coolant circulation pump - V50-

- For vehicles with hybrid drive
- Exploded view  
⇒ "2.2.3 Exploded view - electric coolant pump, coolant circulation pump V50 , vehicles with hybrid drive", page 93

3 - Coolant valve for electric drive - N565-

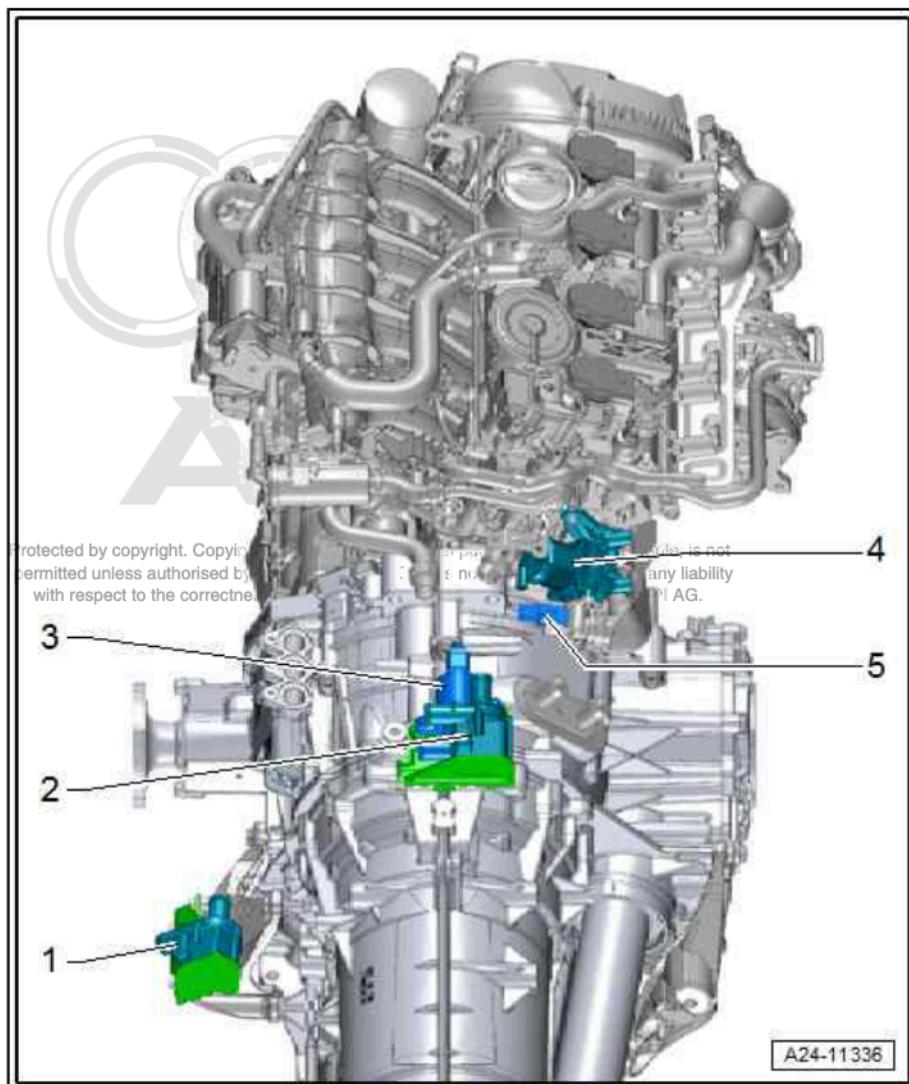
- For vehicles with hybrid drive
- Exploded view  
⇒ "2.2.4 Exploded view - electric coolant pump, pump unit, vehicles with hybrid drive", page 94

4 - Coolant shut-off valve - N82-

- For vehicles with hybrid drive
- Exploded view  
⇒ "2.2.4 Exploded view - electric coolant pump, pump unit, vehicles with hybrid drive", page 94

5 - Secondary air inlet valve - N112-

- For vehicles with hybrid drive
- Exploded view ⇒ "3.1 Exploded view - secondary air system", page 189



A24-11336

## 6 - Sender 1 for secondary air pressure - G609-

- For vehicles with hybrid drive
- Exploded view ⇒ ["3.1 Exploded view - secondary air system", page 189](#)

### 1.2 Checking fuel system for leaks

All procedures are described in ⇒ Servicing 4-cylinder engine,  
1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injection system ;  
Checking fuel system for leaks.



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## 2 Vacuum system

All procedures and components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Vacuum system .



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### 3 Air cleaner

⇒ "3.1 Exploded view - air cleaner housing", page 151

⇒ "3.2 Removing and installing air cleaner housing", page 152

#### 3.1 Exploded view - air cleaner housing

##### 1 - Air duct

- Clean out salt deposits, dirt and leaves, etc.

##### 2 - Sealing element

##### 3 - Mounting

- For air cleaner housing

##### 4 - Air cleaner housing

- Clean out salt deposits, dirt and leaves, etc.
- Removing and installing  
⇒ page 152

##### 5 - Air filter element

- Use genuine air filter element ⇒ Electronic parts catalogue
- Change intervals ⇒ Maintenance tables
- Removing and installing  
⇒ Maintenance ; Booklet 411

##### 6 - Cover

- For air cleaner housing
- Remove any salt deposits or dirt

##### 7 - Housing for air mass meter - G70-

##### 8 - Bolt

- 1.5 Nm

##### 9 - Air mass meter - G70-

- Removing and installing  
⇒ page 167

##### 10 - Screw-type clip

- Tightening torque ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system

##### 11 - Air pipe

##### 12 - Screw-type clip

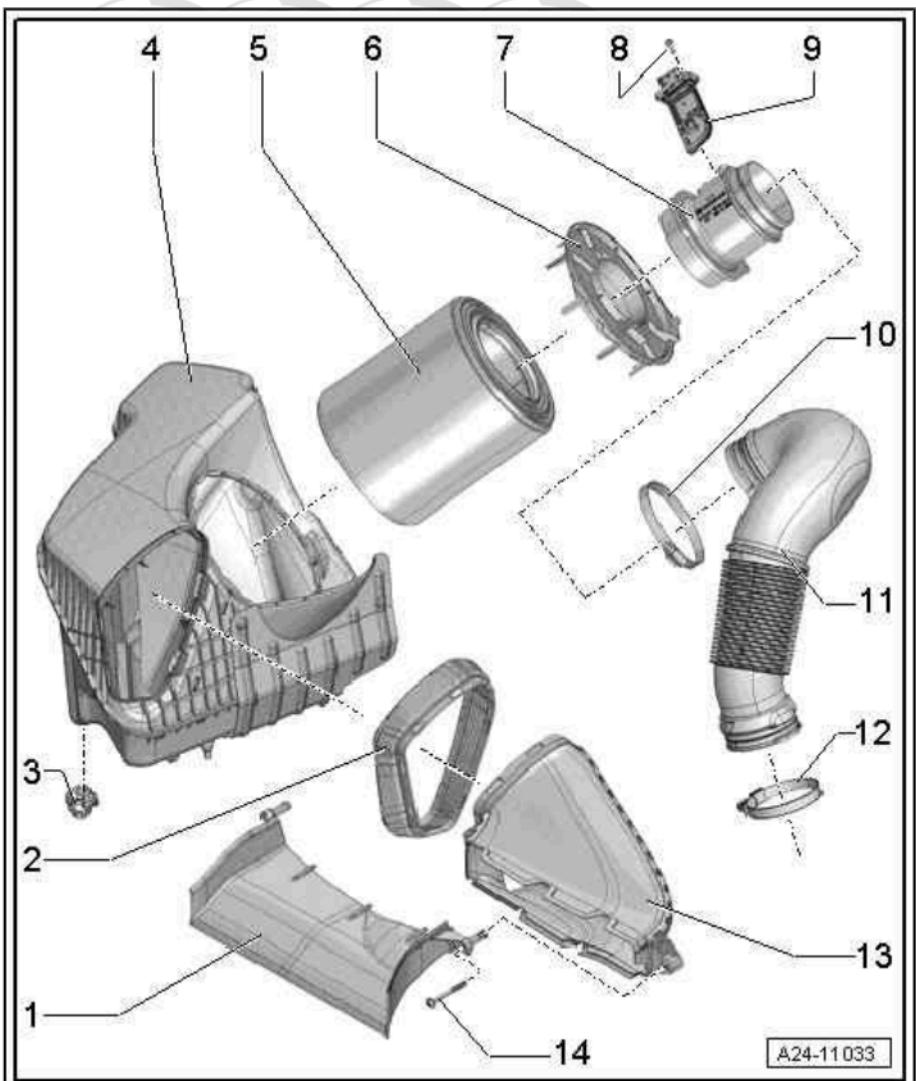
- Tightening torque ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system

##### 13 - Air duct

- Clean out salt deposits, dirt and leaves, etc.

##### 14 - Bolt

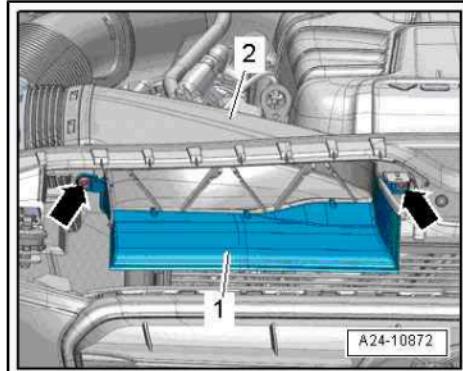
- 1.5 Nm



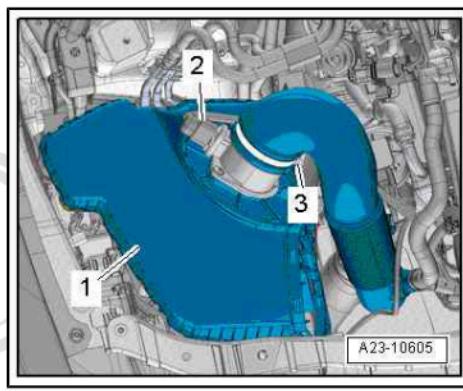
### 3.2 Removing and installing air cleaner housing

#### Removing

- Remove lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .
- Remove bolts -arrows- and detach air duct -2-.



- Unplug electrical connector -2- at air mass meter - G70- .
- Open hose clip -3- on air hose and disconnect hose at air mass meter - G70- .



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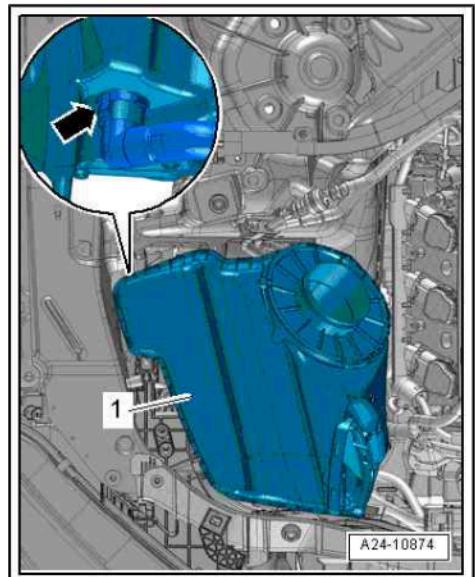
- Lift out air cleaner housing -1-.
- Vehicles with hybrid drive: Press release tabs and disconnect secondary air hose -arrow-.

#### Installing

To ensure the proper function of the air mass meter - G70- it is important to observe the following instructions.

#### Note

- ◆ *The air cleaner housing must always be clean.*
- ◆ *To prevent malfunctions, cover critical parts of the engine air intake (air mass meter, air pipes etc.) with a clean cloth when blowing out the air cleaner housing with compressed air.*
- ◆ *Hose connections and air pipes/ hoses must be free of oil and grease prior to fitting.*
- ◆ *Use a lubricant (silicone-free) when installing air hoses.*
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*



- Check water drain hose in air cleaner (bottom section) for dirt and other obstructions (clean if necessary).
- Clean salt residue, dirt and leaves out of air cleaner housing (top and bottom sections); use a vacuum cleaner if necessary.
- Check for salt residue, dirt and leaves in air hose (engine intake side).
- Check air duct leading from lock carrier to air cleaner housing for dirt and leaves.
- Re-install air cleaner housing.
- Make sure that air hose is correctly seated at air mass meter - G70- .

The remaining installation steps are carried out in the reverse sequence.  
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- Install lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .

#### Tightening torques

- ◆ ⇒ “3.1 Exploded view - air cleaner housing”, page 151

## 4 Intake manifold

- ⇒ [“4.1 Exploded view - intake manifold”, page 154](#)
- ⇒ [“4.2 Removing and installing intake manifold”, page 154](#)
- ⇒ [“4.3 Removing and installing throttle valve module J338”, page 164](#)
- ⇒ [“4.4 Cleaning throttle valve module”, page 165](#)
- ⇒ [“4.5 Checking intake manifold change-over function”, page 165](#)

### 4.1 Exploded view - intake manifold

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Exploded view - intake manifold .

### 4.2 Removing and installing intake manifold

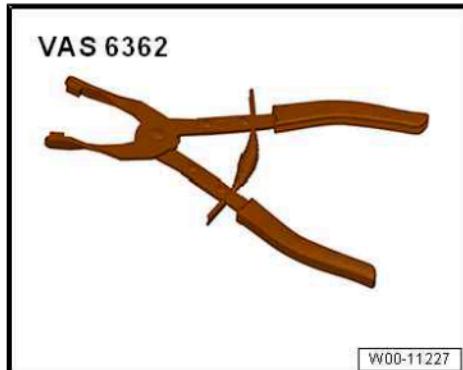
- ⇒ [“4.2.1 Removing and installing intake manifold - vehicles without hybrid drive”, page 154](#)
- ⇒ [“4.2.2 Removing and installing intake manifold - vehicles with hybrid drive”, page 158](#)

#### 4.2.1 Removing and installing intake manifold - vehicles without hybrid drive

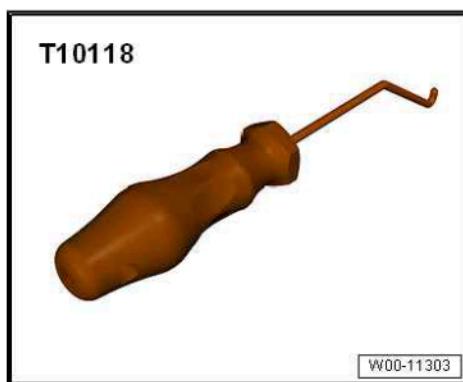
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Special tools and workshop equipment required

- ◆ Hose clip pliers - VAS 6362-



- ◆ Assembly tool - T10118-



- ◆ Socket - T10347-

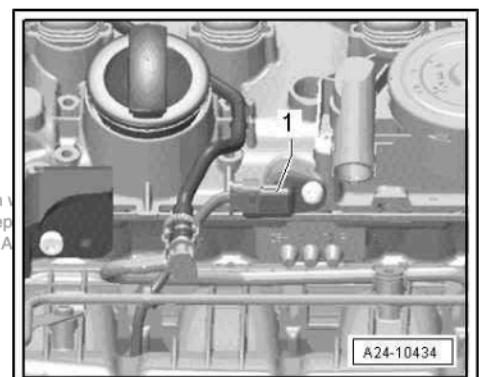
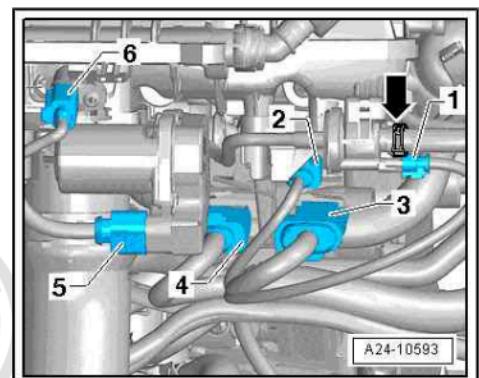


### Removing

 Note

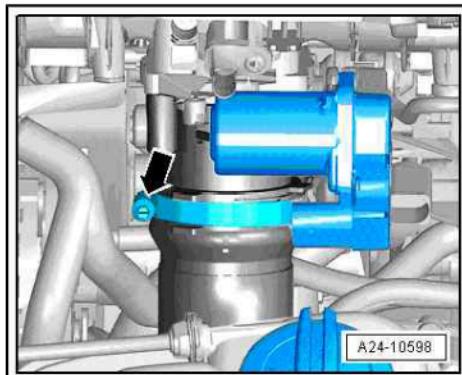
- ◆ In order to reach the injectors, first remove the intake manifold with the fuel rail.
- ◆ The combustion chamber ring seal (teflon) and the O-ring must be renewed.

- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
  - Disconnect vacuum line -arrow- leading to activated charcoal filter.
  - Unplug following electrical connectors:
- 1 - Activated charcoal filter solenoid valve 1 - N80-  
 2 - From knock sensor 1 - G61-  
 3 - From intake manifold flap valve - N316- , fuel pressure sender - G247- and Hall sender - G40-  
 4 - From injectors  
 5 - Throttle valve module - J338-  
 6 - Intake air temperature sender - G42-
- Unplug electrical connector -1- at Hall sender - G40- .

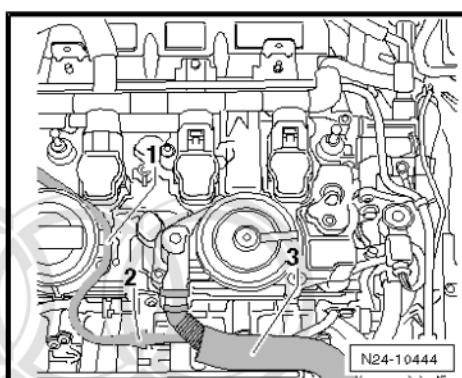


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- Open hose clip -arrow- securing air hose and disconnect hose downwards from throttle valve module - J338- .



- Disconnect vacuum line -1- at connection -2-.
- Remove crankcase breather hose -3-.



### **⚠ CAUTION**

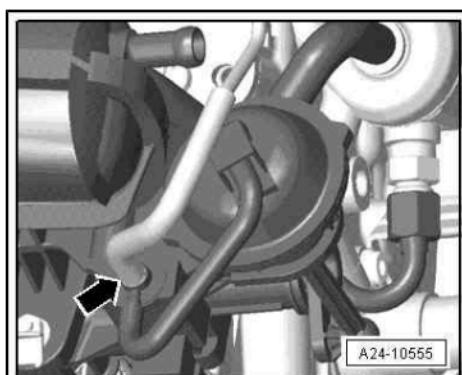
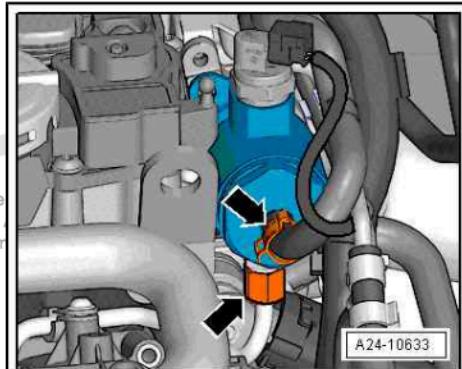
The fuel system is pressurised.

Risk of injury as fuel may spray out.

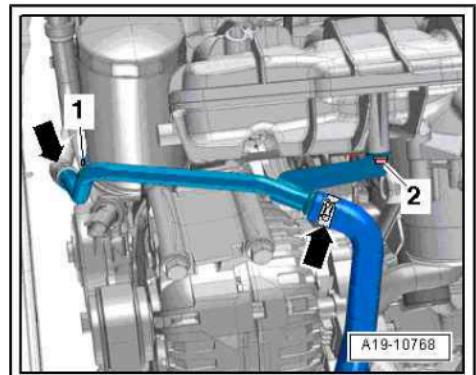
- Put on safety goggles.
- Put on protective gloves.
- Release pressure (wrap a clean cloth around connection and open connection carefully).

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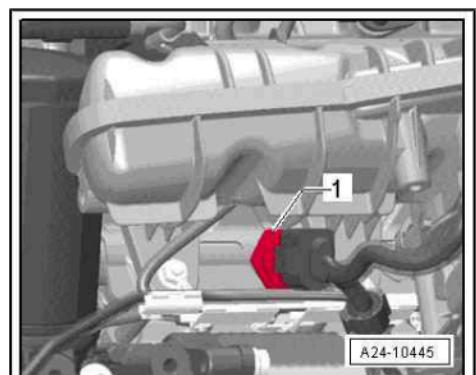
- Release spring-type clip -top arrow- and detach fuel supply hose from high-pressure pump.
- Unscrew union nut for high-pressure fuel pipe -bottom arrow- at high-pressure pump.
- Seal off open lines and connections with plugs (thoroughly cleaned) from engine bung set - VAS 6122- .
- Disconnect vacuum line -arrow- at intake manifold flap valve - N316- .



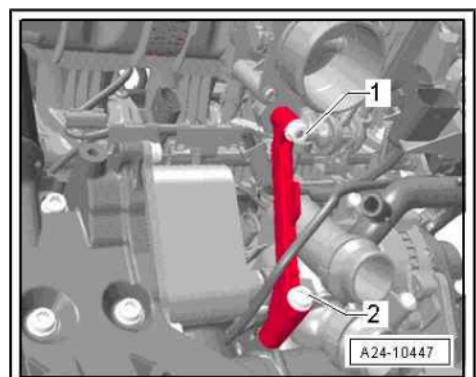
- Remove bolts -1- and -2- and press coolant pipe (front) to side.



- Unplug electrical connector at fuel pressure sender - G247-  
-1-.



- Remove intake manifold support (remove securing nut -1- and bolt -2-).
- Remove oil filter ⇒ Maintenance ; Booklet 411 .
- Unscrew bolts from intake manifold using socket - T10347- .



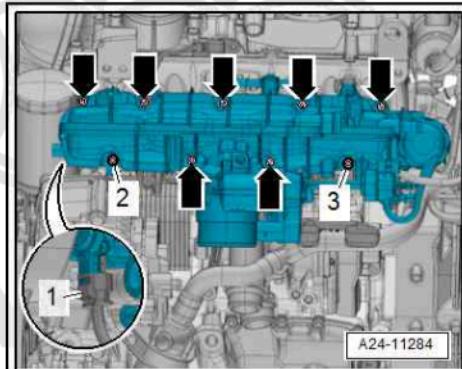
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### Note

To remove the bolts that cannot be accessed if you do not have socket - T10347- , the throttle valve module - J338- must be removed.

- Remove bolts -arrows- and nuts -2, 3-.
- Carefully pull intake manifold and fuel rail slightly away from cylinder head.
- Unplug electrical connector -1- from intake manifold flap potentiometer - G336- and then detach intake manifold.



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### Note

- ◆ The injectors can remain in the fuel rail. Unplug electrical connector from corresponding injector.
- ◆ Block off intake ports with clean cloths.

- Disconnect intake manifold from fuel rail ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Removing and installing fuel rail .

### Installing

### Note

Make sure that injectors are installed correctly.

- Fit intake manifold onto studs (left and right) on cylinder head.
- Remaining installation steps are carried out in reverse sequence; note the following:
- Install oil filter ⇒ Maintenance ; Booklet 411 .
- After installing intake manifold, perform "Adaption" using ⇒ Vehicle diagnostic tester, Guided Functions.

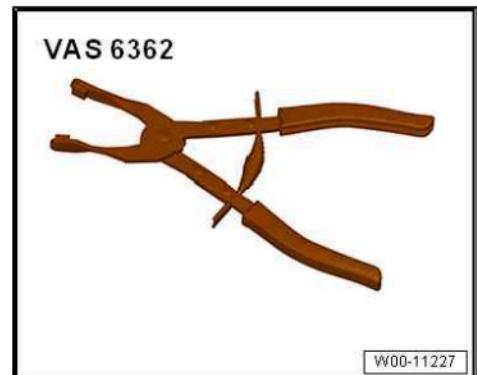
### Tightening torques

- ◆ ⇒ "3.1.1 Exploded view - coolant pipes (engine end)", page 108
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Exploded view - intake manifold
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Exploded view - fuel rail with injectors

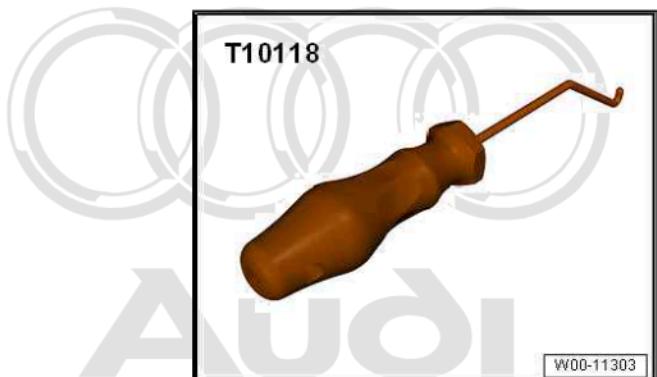
## 4.2.2 Removing and installing intake manifold - vehicles with hybrid drive

Special tools and workshop equipment required

- ◆ Hose clip pliers - VAS 6362-



- ◆ Assembly tool - T10118-



- ◆ Socket - T10347-

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## Removing

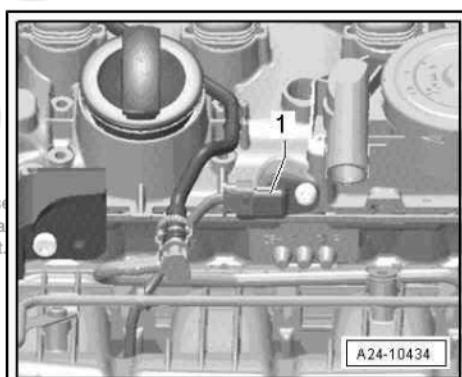
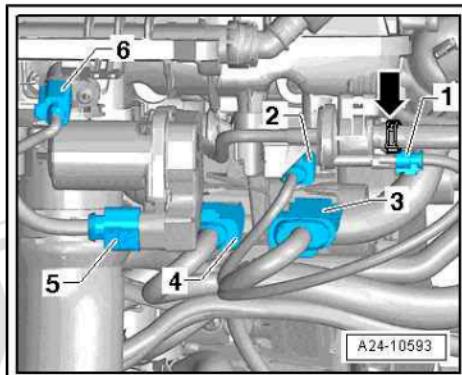
### WARNING

High voltage can cause fatal injury.

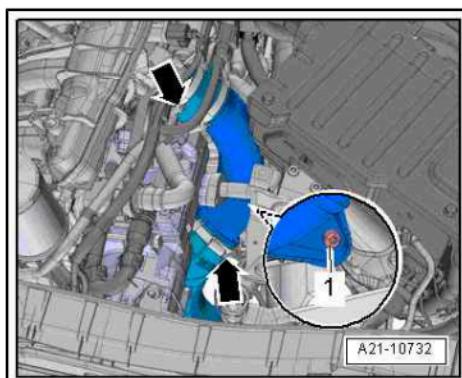
Danger of severe or fatal injuries from electric shock.

- Note safety precautions when working in the vicinity of high-voltage components.
- Safety precautions when working in the vicinity of high-voltage components  
⇒ ["2.2 Safety precautions when working in the vicinity of high-voltage components", page 3](#)
- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

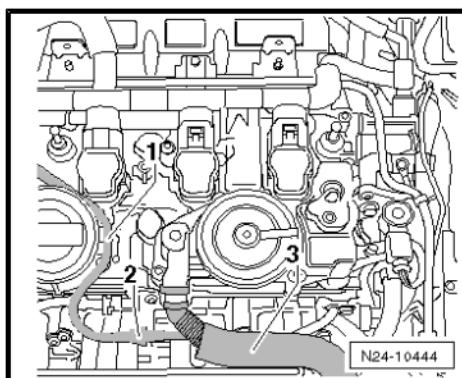
- Disconnect vacuum line -arrow- leading to activated charcoal filter.
- Unplug following electrical connectors:
  - 1 - Activated charcoal filter solenoid valve 1 - N80-
  - 2 - From knock sensor 1 - G61-
  - 3 - From intake manifold flap valve - N316- , fuel pressure sender - G247- and Hall sender - G40-
  - 4 - From injectors
  - 5 - Throttle valve module - J338-
  - 6 - Intake air temperature sender - G42-
- Unplug electrical connector -1- at Hall sender - G40- .



- Loosen hose clips -arrows-.
- Unscrew bolt -1- and detach air pipe.



- Disconnect vacuum line -1- at connection -2-.
- Remove crankcase breather hose -3-.



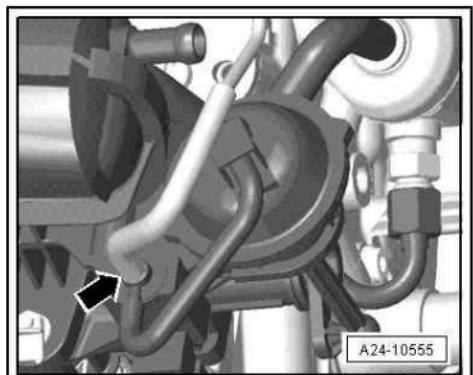
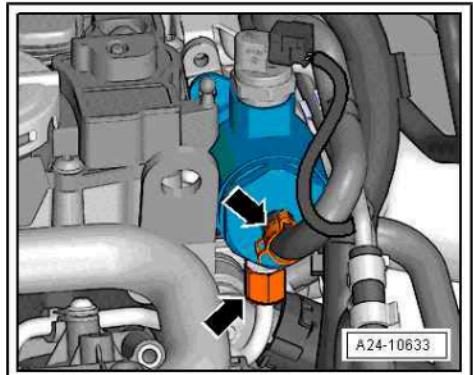
### **CAUTION**

The fuel system is pressurised.

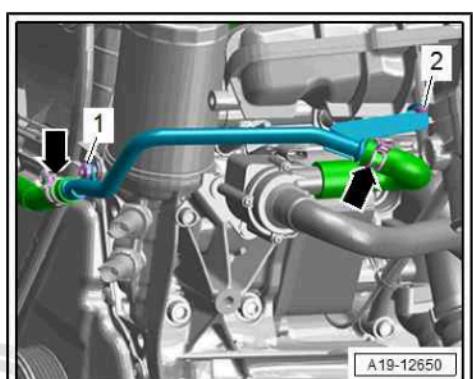
Risk of injury as fuel may spray out.

- Put on safety goggles.
- Put on protective gloves.
- Release pressure (wrap a clean cloth around connection and open connection carefully).

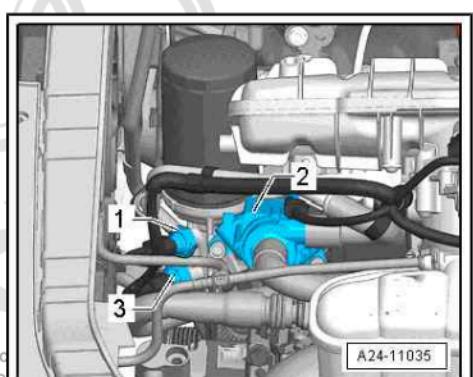
- Release spring-type clip -top arrow- and detach fuel supply hose from high-pressure pump.
- Unscrew union nut for high-pressure fuel pipe -bottom arrow- at high-pressure pump.
- Seal off open lines and connections with plugs (thoroughly cleaned) from engine bung set - VAS 6122- .
- Disconnect vacuum line -arrow- at intake manifold flap valve - N316- .



- Remove bolts -1- and -2- and press coolant pipe (front) to side.

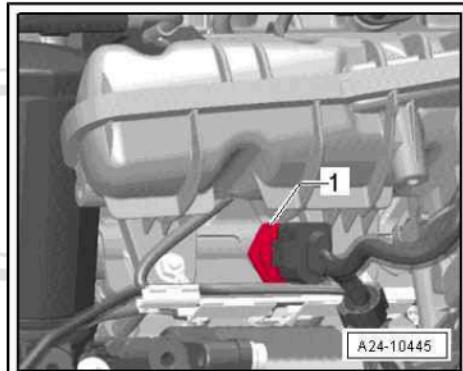


- Remove continued coolant circulation pump - V51- -2-.



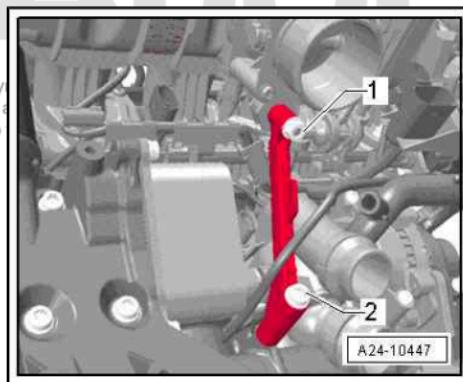
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- Unplug electrical connector at fuel pressure sender - G247-  
-1-.
- Remove electrically driven air conditioner compressor from  
bracket → Heating, air conditioning; Rep. gr. 87 ; Air condi-  
tioner compressor; Detaching and attaching air conditioner  
compressor at bracket .



- Remove intake manifold support (remove securing nut -1- and  
bolt -2-).
- Remove oil filter ⇒ Maintenance ; Booklet 411 .

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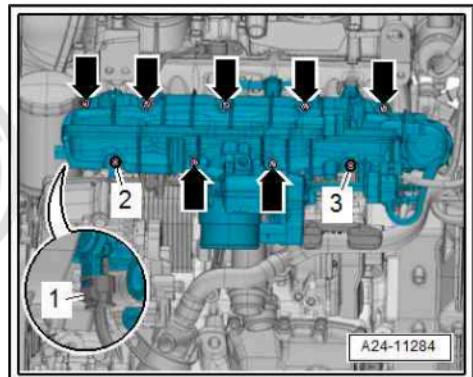




### Note

*To remove the bolts that cannot be accessed if you do not have socket - T10347-, the throttle valve module - J338- must be removed.*

- Remove bolts -arrows- and nuts -2, 3-.
- Carefully pull intake manifold and fuel rail slightly away from cylinder head.
- Unplug electrical connector -1- from intake manifold flap potentiometer - G336- and then detach intake manifold.



### Note

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- ◆ *The injectors can remain in the fuel rail. Unplug electrical connector from corresponding injector.*

- ◆ *Block off intake ports with clean cloths.*

- Disconnect intake manifold from fuel rail ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Removing and installing fuel rail .

### Installing



### Note

*Make sure that injectors are installed correctly.*

- Fit intake manifold onto studs (left and right) on cylinder head.
- Remaining installation steps are carried out in reverse sequence; note the following:
- Install oil filter ⇒ Maintenance ; Booklet 411 .
- Install air conditioner compressor ⇒ Heating, air conditioning; Rep. gr. 87 ; Air conditioner compressor; Detaching and attaching air conditioner compressor at bracket .
- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- After installing intake manifold, perform "Adaption" using ⇒ Vehicle diagnostic tester, Guided Functions.

### Tightening torques

- ◆ ⇒ "3.1.2 Exploded view - coolant pipes, vehicles with hybrid drive", page 110
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Exploded view - intake manifold
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Exploded view - fuel rail with injectors

## 4.3 Removing and installing throttle valve module - J338-

⇒ “4.3.1 Removing and installing throttle valve module J338 - vehicles without hybrid drive”, page 164

⇒ “4.3.2 Removing and installing throttle valve module J338 - vehicles with hybrid drive”, page 164

### 4.3.1 Removing and installing throttle valve module - J338- - vehicles without hybrid drive

#### Removing

- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Open hose clip -arrow- securing air hose and disconnect hose downwards from throttle valve module - J338- .

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Removing and installing throttle valve module - J338- .

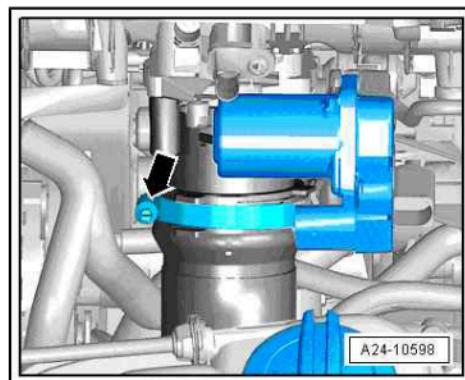
#### Installing

##### Additional work:

- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

#### Tightening torques

- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system



### 4.3.2 Removing and installing throttle valve module - J338- - vehicles with hybrid drive

#### Removing

##### WARNING

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- Note safety precautions when working in the vicinity of high-voltage components.

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- Safety precautions when working in the vicinity of high-voltage components

⇒ “2.2 Safety precautions when working in the vicinity of high-voltage components”, page 3

- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Detach coolant expansion tank and place to one side (coolant hose remains connected).

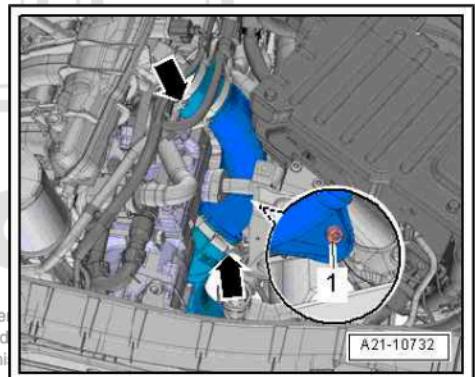
- Loosen hose clips -arrows-.
- Unscrew bolt -1- and detach air pipe.

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Removing and installing throttle valve module - J338- .

#### Installing

##### Additional work:

- Install engine cover panel ⇒ **Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10**   
**Engine cover panel**  
Removing and installing engine cover panel



##### Tightening torques

- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system

## 4.4 Cleaning throttle valve module

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Cleaning throttle valve module .

## 4.5 Checking intake manifold change-over function

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Checking intake manifold change-over function .

## 5 Injectors

All procedures and components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors .



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## 6 Senders and sensors

⇒ "6.1 Removing and installing intake air temperature sender G42", page 167

⇒ "6.2 Removing and installing air mass meter G70", page 167

⇒ "6.3 Removing and installing fuel pressure sender G247", page 167

⇒ "6.4 Checking fuel pressure sender G247", page 167

### 6.1 Removing and installing intake air temperature sender - G42-

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Senders and sensors ; Removing and installing intake air temperature sender - G42- .

### 6.2 Removing and installing air mass meter - G70-

Removing

- Unplug electrical connector -2- at air mass meter - G70- .
- Open hose clip -3- on air hose and disconnect hose at air mass meter - G70- .

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Senders and sensors; Removing and installing air mass meter - G70- .

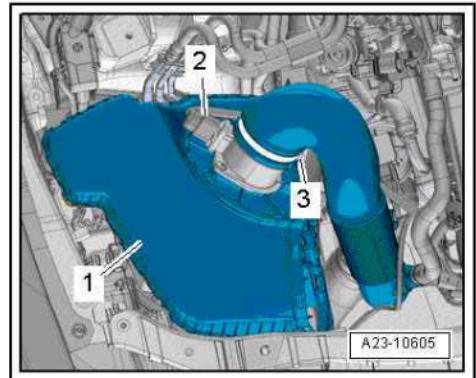
Installing

Additional work:



Note

*Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*



Tightening torques

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◆ ⇒ **Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI;**  
Rep. gr. 21; Charge air system; Exploded view - hose connections for charge air system

### 6.3 Removing and installing fuel pressure sender - G247-

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Senders and sensors ; Removing and installing fuel pressure sender - G247- .

### 6.4 Checking fuel pressure sender - G247-

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Senders and sensors; Checking fuel pressure sender - G247- .



## 7 High-pressure pump

All procedures and components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; High-pressure pump .



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## 8 Lambda probe

[⇒ "8.1 Exploded view - Lambda probe", page 169](#)

[⇒ "8.2 Removing and installing Lambda probe", page 169](#)

### 8.1 Exploded view - Lambda probe

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Lambda probe; Exploded view - Lambda probe .

### 8.2 Removing and installing Lambda probe

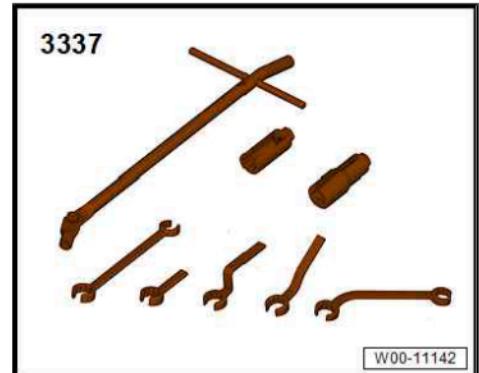
[⇒ "8.2.1 Removing and installing Lambda probe G39 ",  
page 169](#)

[⇒ "8.2.2 Removing and installing Lambda probe after catalytic  
converter G130 ", page 170](#)

#### 8.2.1 Removing and installing Lambda probe - G39-

Special tools and workshop equipment required

- ◆ Lambda probe open ring spanner set - 3337-



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## Removing

- Unplug electrical connector -2- for Lambda probe - G39- and Lambda probe heater - Z19- .
- Unscrew Lambda probe - G39- -1- using tool from Lambda probe open ring spanner set - 3337- .

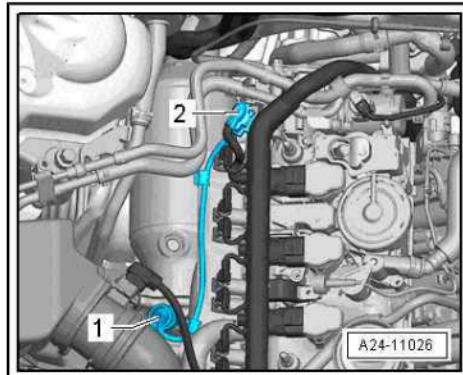
## Installing

When installing, note the following:



### Note

- ◆ Threads of new Lambda probes are already coated with assembly paste; the paste must not get into the slots on the probe body.
- ◆ In the case of a used Lambda probe grease only the thread with high-temperature paste. The paste must not get into the slots on the Lambda probe body. High-temperature paste ⇒ Electronic parts catalogue
- ◆ When installing, the Lambda probe wiring must always be re-attached at the same locations to prevent it from coming into contact with the exhaust pipe.



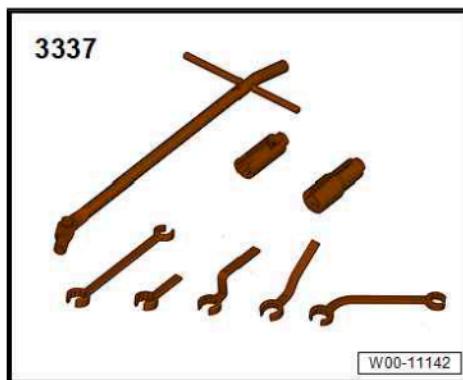
## Tightening torques

- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI;  
Rep. gr. 24 ; Lambda probe; Exploded view - Lambda probe

## 8.2.2 Removing and installing Lambda probe after catalytic converter - G130-

Special tools and workshop equipment required

- ◆ Lambda probe open ring spanner set - 3337-



## Removing

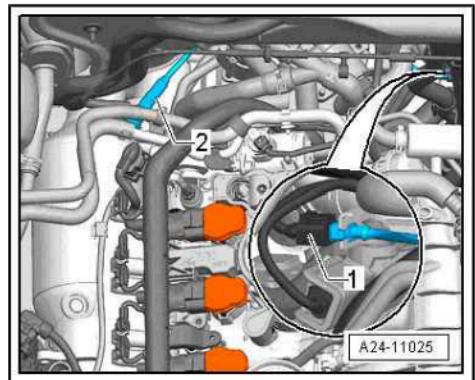
- Unplug electrical connector -1- for Lambda probe after catalytic converter - G130- and Lambda probe 1 heater after catalytic converter - Z29- .
- Unscrew Lambda probe after catalytic converter - G130- -2- using tool from Lambda probe open ring spanner set - 3337- .

## Installing

When installing, note the following:



- ◆ Threads of new Lambda probes are already coated with assembly paste; the paste must not get into the slots on the probe body.
- ◆ In the case of a used Lambda probe grease only the thread with high-temperature paste. The paste must not get into the slots on the Lambda probe body. High-temperature paste ⇒ Electronic parts catalogue
- ◆ When installing, the Lambda probe wiring must always be reattached at the same locations to prevent it from coming into contact with the exhaust pipe.



## Tightening torques

- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI;  
Rep. gr. 24 ; Lambda probe; Exploded view - Lambda probe



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## 9 Engine control unit

⇒ "9.1 Removing and installing engine/motor control unit J623",  
page 172

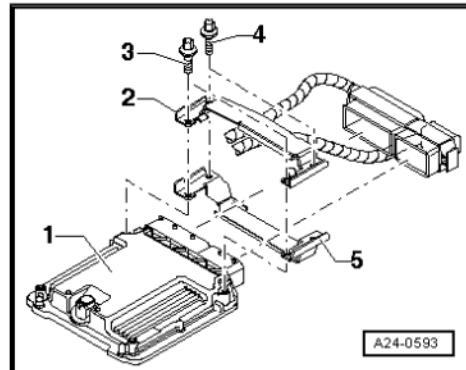
⇒ "9.2 Wiring and component check", page 174

### 9.1 Removing and installing engine/motor control unit - J623-



#### Note

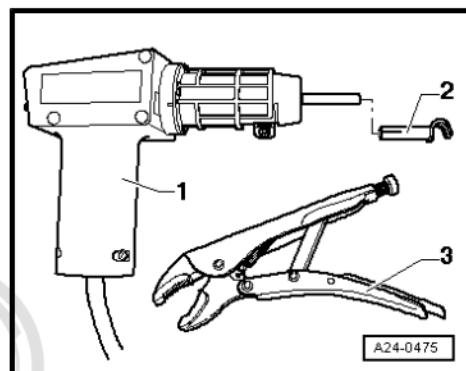
- ◆ Not every engine control unit is bolted to a protective housing. Whether a protective housing is fitted depends on the engine/gearbox combination.
- ◆ The engine control unit -1- is bolted to a protective casing -2 and 5-. To make it more difficult to unscrew the shear bolts -4- for locking plate -2-, their threads have been coated with locking fluid.
- ◆ The protective housing has to be removed before the connectors can be unplugged from the engine control unit (e.g. to connect the test box or renew the engine control unit).



The following special tools are required if a protective housing is fitted:

#### Special tools and workshop equipment required

- ◆ Hot air blower - VAS 1978/14A- -item 1- with nozzle attachment -2- from wiring harness repair set - VAS 1978 B-
- ◆ Small, commercially available mole grips -3-

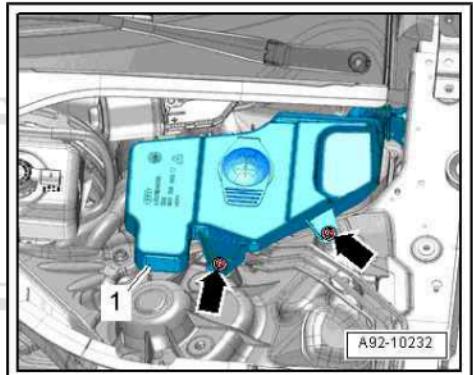


#### Removing

- When renewing engine control unit, select diagnosis object "Replace engine control unit" in "Guided Functions" mode of ⇒ Vehicle diagnostic tester.
- Switch off ignition and remove ignition key.
- Remove plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover

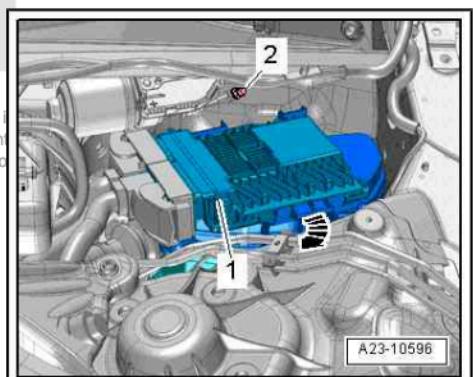
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- Unscrew bolts -arrows- and pull filler neck out of washer fluid reservoir and through opening in body to right side.



- Release catch -arrow- and detach engine control unit - J623 - item 1 -.

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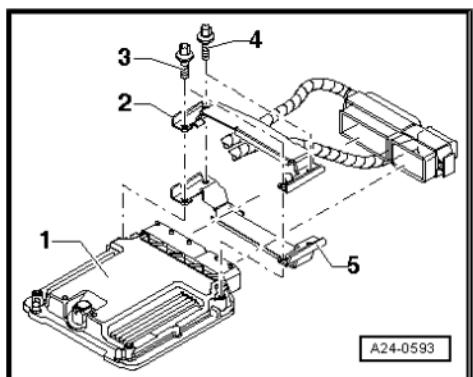


Perform the following work steps if a protective housing is fitted:

To help prevent unauthorised access to the connectors on the engine control unit, the engine control unit -1- is bolted to a protective housing -5- by means of shear bolts -3 and 4- and a locking plate -2-.

The threads of the two shear bolts -4- which are not screwed into the engine control unit are secured with locking fluid. To unscrew these two bolts, the threads must therefore be heated with the hot air blower.

The threads of the two shear bolts -3- which are screwed into the engine control unit are not secured with locking fluid. Do not apply heat to the threads in the control unit housing; this is not necessary and would cause overheating of the control unit.



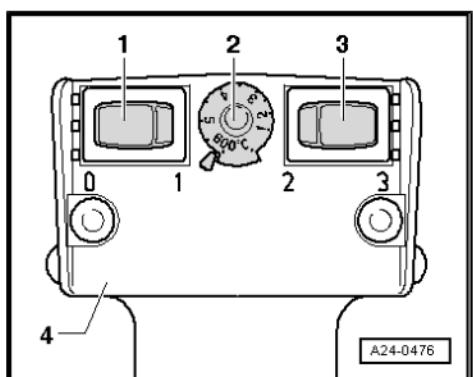
- Select settings on hot air blower as shown in illustration, i.e. set temperature potentiometer -2- to maximum heat output and two-stage air flow switch -3- to position 3.

 **NOTICE**

Risk of damage to surrounding components caused by hot air blower (overheating).

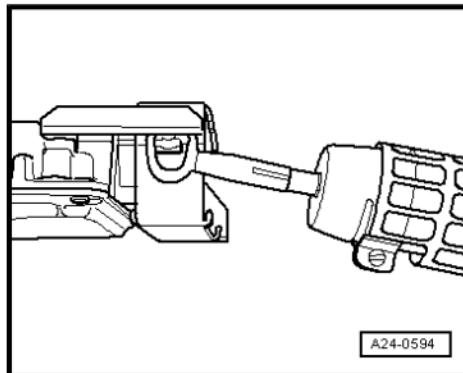
- Cover surrounding components if necessary.

Apply heat to the threads of the shear bolts on the connector side as shown in the illustration.

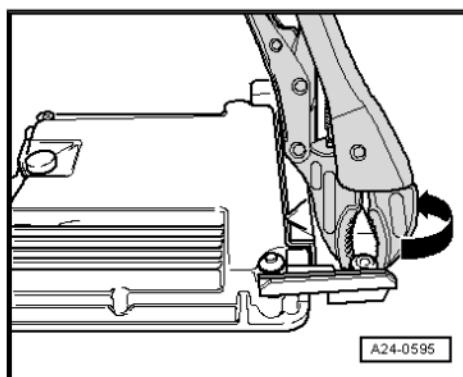




- Apply heat to the threads of the shear bolts on the connector side for approx. 25 to 30 seconds.
- Unscrew shear bolts using suitable vice-grip pliers (see arrow in illustration).



- The two shear bolts screwed into the engine control unit do not need to be heated. They should be removed without being heated.
- Detach protective housing from control unit connectors.
- Release connectors on engine control unit and unplug connectors.
- Take out old engine control unit - J623- and install new engine control unit - J623- .



#### Installing

Installation is performed in the reverse sequence.

- It is important that the protective housing is re-fitted on the engine/motor control unit - J623- (if fitted previously).
- Clean threaded holes for shear bolts to remove any residue from locking fluid. This can be done using a thread tap.
- Always use new shear bolts.

After installing a new engine control unit, the following operation must be performed:

- Activate engine control unit in "Guided Functions" mode, "Replace engine control unit"; use ⇒ Vehicle diagnostic tester.

## 9.2 Wiring and component check

All procedures can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Engine control unit ; Wiring and component check.



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## 26 – Exhaust system

### 1 Exhaust pipes/silencers

- ⇒ "1.1 Exploded view - silencers", page 175
- ⇒ "1.2 Separating exhaust pipes/silencers", page 179
- ⇒ "1.3 Removing and installing front silencer", page 181
- ⇒ "1.4 Stress-free alignment of exhaust system", page 182
- ⇒ "1.5 Checking exhaust system for leaks", page 183

#### 1.1 Exploded view - silencers

- ⇒ "1.1.1 Exploded view - silencers, vehicles without hybrid drive", page 175
- ⇒ "1.1.2 Exploded view - silencers, vehicles with hybrid drive", page 178

##### 1.1.1 Exploded view - silencers, vehicles without hybrid drive

###### 1 - Centre silencer

- Combined in one unit with rear silencers as original equipment. Can be renewed individually for repair purposes
- Cutting point  
⇒ page 179
- Align exhaust system so it is free of stress  
⇒ page 182

###### 2 - Bolt

- 23 Nm

###### 3 - Mounting

- Renew if damaged
- Check preload  
⇒ "1.4 Stress-free alignment of exhaust system", page 182

###### 4 - Gasket

- Renew

###### 5 - Nut

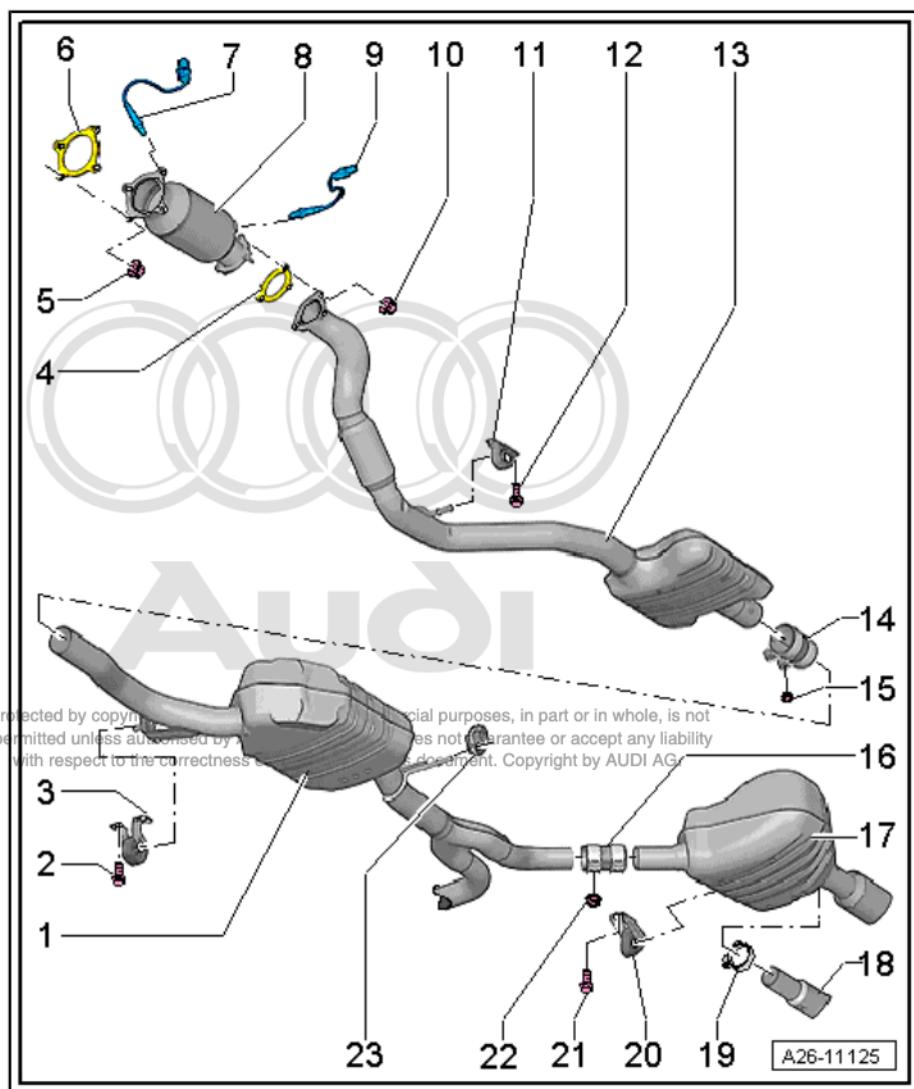
- Tightening torque ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 26; Emission control system; Exploded view - emission control system

###### 6 - Gasket

- Renew

###### 7 - Lambda probe - G39- and Lambda probe heater - Z19-

- Removing and installing ⇒ page 169





## 8 - Catalytic converter

- Protect catalytic converter from damage by knocks and impact
- Removing and installing [⇒ page 184](#)
- Align exhaust system so it is free of stress [⇒ page 182](#)

## 9 - Lambda probe after catalytic converter - G130- and Lambda probe heater 1 after catalytic converter - Z29-

- Removing and installing [⇒ page 170](#)

## 10 - Nut

- Tightening torque ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 26 ; Emission control system; Exploded view - emission control system

## 11 - Mounting

- Renew if damaged
- Check preload [⇒ "1.4 Stress-free alignment of exhaust system", page 182](#)

## 12 - Bolt

- 23 Nm

## 13 - Front silencer

- With flexible joint
- Do not bend flexible joint more than 10° - otherwise it can be damaged
- Install flexible joint so that it is not under tension.
- Take care not to damage wire mesh on flexible joint
- Removing and installing [⇒ page 181](#)
- Align exhaust system so it is free of stress [⇒ page 182](#)

## 14 - Clamp (front)

- Before tightening, align exhaust system so it is free of stress [⇒ page 182](#)
- Installation position [⇒ page 177](#)
- Tighten bolt connections evenly.

## 15 - Nut

- 23 Nm

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## 16 - Clamp (rear left)

- For separate replacement of centre and rear silencers
- Installation position [⇒ page 177](#)
- Before tightening, align exhaust system so it is free of stress [⇒ page 182](#)
- Tighten bolted connections evenly

## 17 - Rear silencer (left-side)

- Combined as one unit with centre silencer as original equipment
- Centre silencer and rear silencer can be renewed separately as required
- Cutting point between centre silencer and rear silencer [⇒ page 179](#)
- Align exhaust system so it is free of stress [⇒ page 182](#)

## 18 - Tailpipe

- Combined in one unit with rear silencer as original equipment. Can be renewed individually for repair purposes
- Cutting point [⇒ page 179](#)
- Aligning [⇒ page 183](#)

## 19 - Clamp

- 23 Nm

## 20 - Mounting

- Renew if damaged
- Check preload [⇒ "1.4 Stress-free alignment of exhaust system", page 182](#)

21 - Bolt

- 23 Nm

22 - Nut

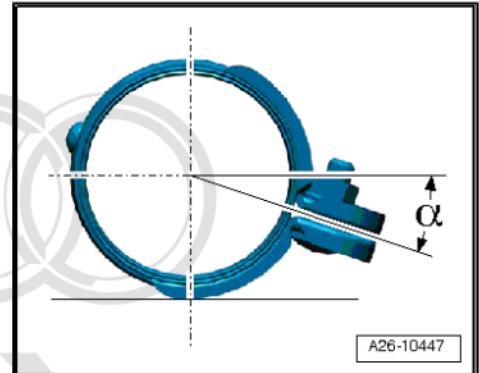
- 23 Nm

23 - Rubber mounting

- Renew if damaged

Installation position of front clamp

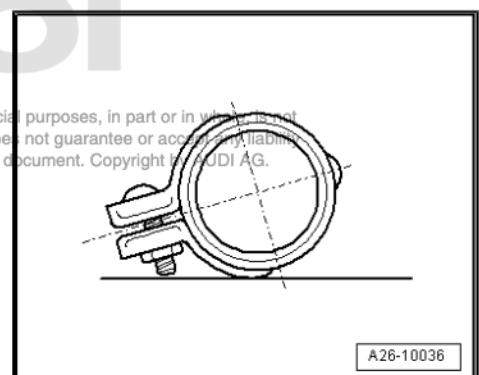
- Fit the clamp at the angle shown.
- Bolted connections face to right.
- Nuts face upwards.
- $\alpha = \text{approx. } 20^\circ$



Installation position of rear clamps

- Install clamps so that the bolt ends do not protrude beyond bottom of clamp.
- Installation position: bolted connections face forwards.

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## 1.1.2 Exploded view - silencers, vehicles with hybrid drive

### 1 - Centre silencer

- Combined in one unit with rear silencers as original equipment. Can be renewed individually for repair purposes
- Cutting point [⇒ page 179](#)
- Align exhaust system so it is free of stress [⇒ page 182](#)

### 2 - Bolt

- 23 Nm

### 3 - Mounting

- Renew if damaged
- Check preload  
[⇒ "1.4 Stress-free alignment of exhaust system", page 182](#)

### 4 - Mounting

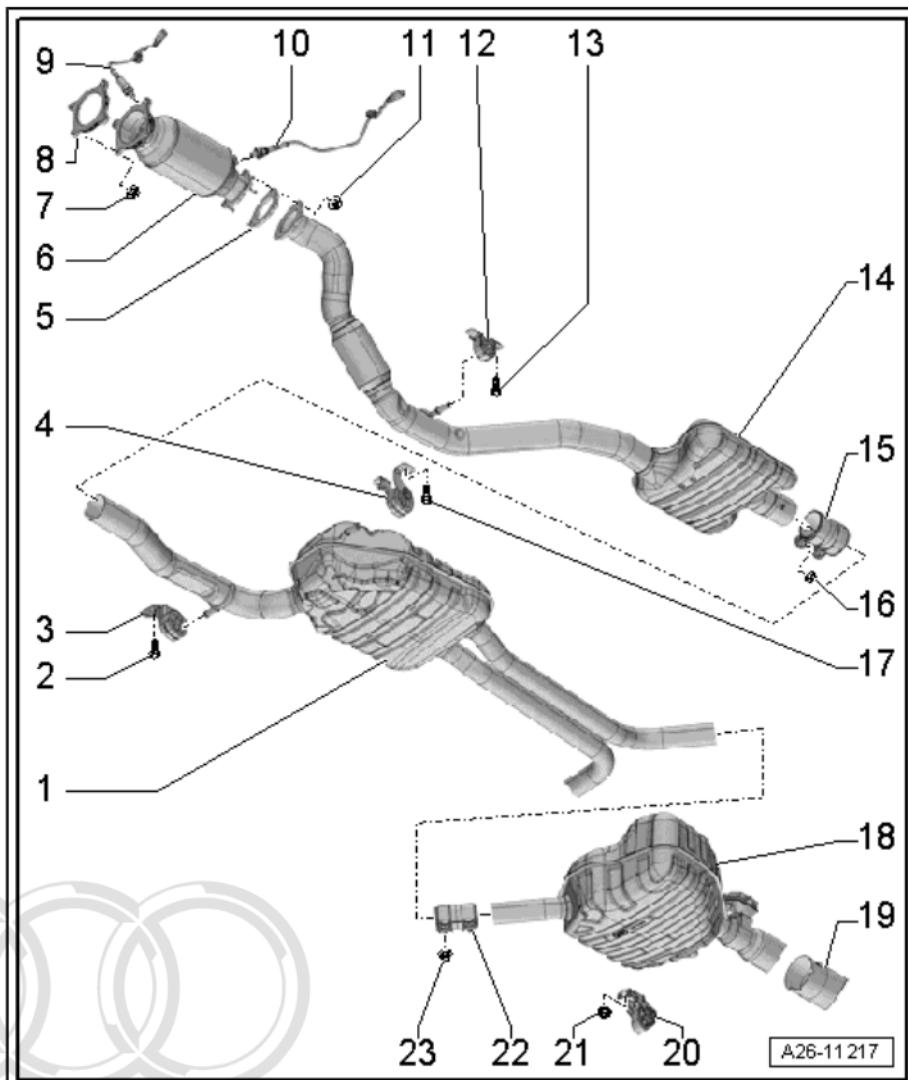
- Renew if damaged
- Check preload  
[⇒ "1.4 Stress-free alignment of exhaust system", page 182](#)

### 5 - Gasket

- Renew

### 6 - Catalytic converter

- Protect catalytic converter from damage by knocks and impact
- Removing and installing [⇒ page 184](#)
- Align exhaust system so it is free of stress [⇒ page 182](#)



### 7 - Nut

- Renew
- 20 Nm

### 8 - Seal

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### 9 - Lambda probe - G39- and Lambda probe heater - Z19-

- Removing and installing [⇒ page 169](#)

### 10 - Lambda probe after catalytic converter - G130- and Lambda probe heater 1 after catalytic converter - Z29-

- Removing and installing [⇒ page 170](#)

### 11 - Nut

- Renew
- 20 Nm

### 12 - Mounting

- Renew if damaged
- Check preload [⇒ "1.4 Stress-free alignment of exhaust system", page 182](#)

13 - Bolt

- 23 Nm

14 - Front silencer

- With flexible joint
- Do not bend flexible joint more than 10° - otherwise it can be damaged
- Install flexible joint so that it is not under tension.
- Take care not to damage wire mesh on flexible joint
- Removing and installing [⇒ page 181](#)
- Align exhaust system so it is free of stress [⇒ page 182](#)

15 - Clamp (front)

- Before tightening, align exhaust system so it is free of stress [⇒ page 182](#)
- Installation position [⇒ page 177](#)
- Tighten bolt connections evenly.

16 - Nut

- 23 Nm

17 - Bolt

- 23 Nm

18 - Rear silencer (left-side)

- Combined as one unit with centre silencer as original equipment
- Centre silencer and rear silencer can be renewed separately as required
- Cutting point between centre silencer and rear silencer [⇒ page 179](#)
- Align exhaust system so it is free of stress [⇒ page 182](#)

19 - Tailpipe

- Combined in one unit with rear silencer as original equipment. Can be renewed individually for repair purposes
- Cutting point [⇒ page 179](#)
- Aligning [⇒ page 183](#)

20 - Mounting

- Renew if damaged
- Check preload [⇒ "1.4 Stress-free alignment of exhaust system", page 182](#)

21 - Nut

- 23 Nm

22 - Clamp (rear left)

- For separate replacement of centre and rear silencers
- Installation position [⇒ page 177](#)
- Before tightening, align exhaust system so it is free of stress [⇒ page 182](#)
- Tighten bolted connections evenly

23 - Nut

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## 1.2 Separating exhaust pipes/silencers

- ◆ The connecting pipe can be cut through at the cutting point in order to renew the centre or rear silencer separately.
- ◆ The cutting point is marked by an indentation on the circumference of the exhaust pipe.

Special tools and workshop equipment required

- ◆ Chain pipe cutter - VAS 6254-



VAS 6254



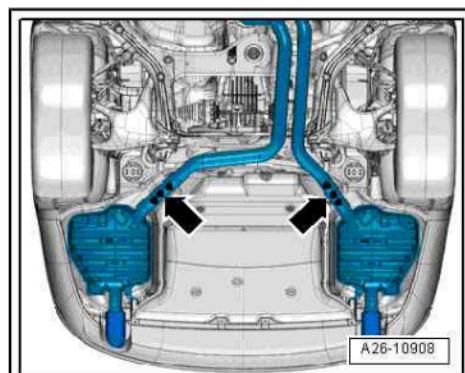
W00-11552

#### Procedure

- Cut through exhaust pipes at right angles at the positions marked -arrows- using chain pipe cutter - VAS 6254- .

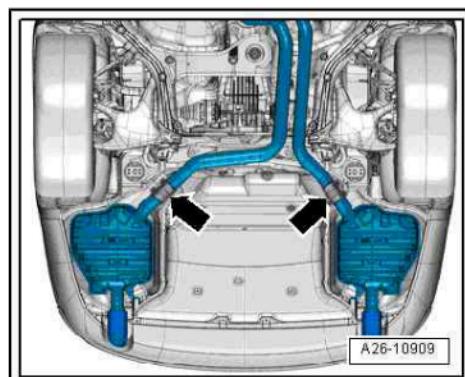


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A26-10908

- Position centre of clamps -arrows- over cutting location.

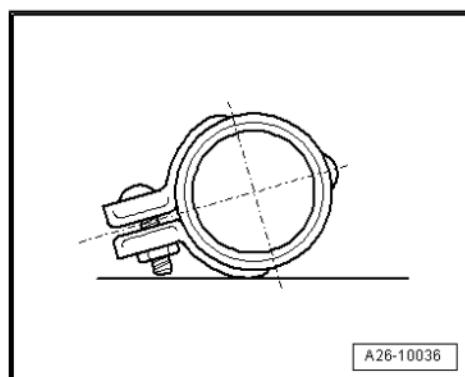


A26-10909

- Install clamps so that the bolt ends do not protrude beyond bottom of clamp.
- Installation position: bolted connections face forwards.
- Align the exhaust system so it is free of stress [⇒ page 182](#) .

#### Tightening torques

- ◆ [⇒ “1.1 Exploded view - silencers”, page 175](#)



A26-10036

## 1.3 Removing and installing front silencer

### Removing

Vehicles without hybrid drive:

- Remove nuts -1 and 2- (accessible from above) for front silencer.



Note

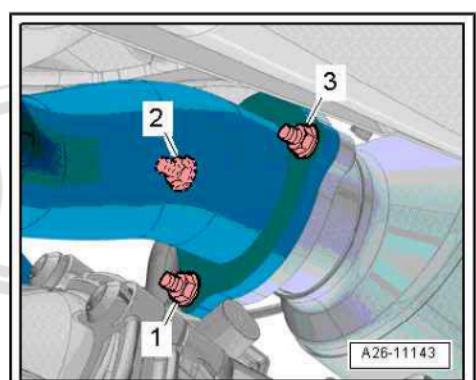
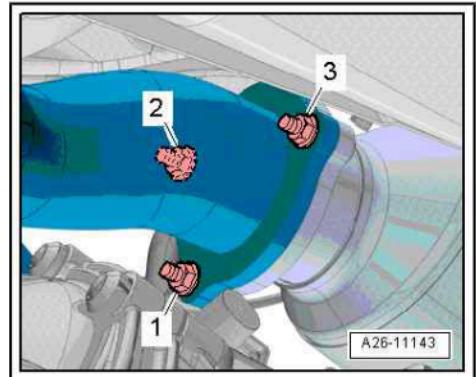
*Nut -3- is removed at a later stage.*

Continued for all vehicles:

- Remove noise insulation (rear) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove nut -3- for front silencer.

Vehicles with hybrid drive:

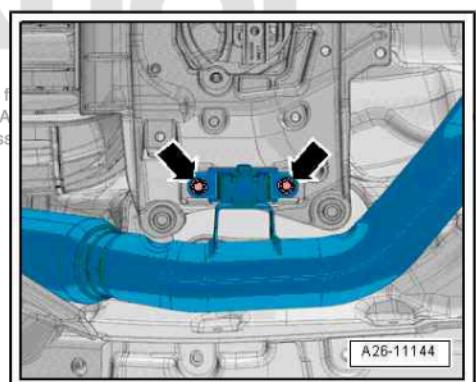
- Remove nuts -1 and 2-.



Continued for all vehicles:

- Remove bolts -arrows- for front exhaust pipe.

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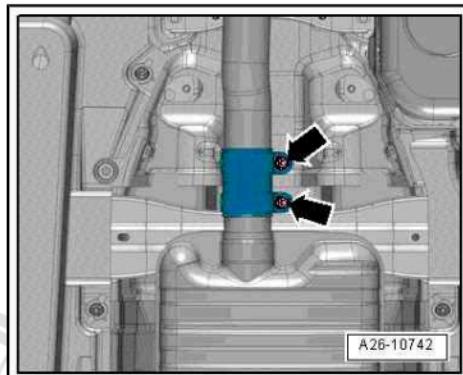
**! NOTICE**

Risk of damage to flexible joint if handled incorrectly.

- Do not bend flexible joint more than 10°.
- Install flexible joint so that it is not under tension.
- Unfasten connections -arrows-, push clamp towards rear and detach front silencer.

**Installing**

Installation is carried out in the reverse order; note the following:



**Note**

*Renew seals, gaskets and self-locking nuts.*

- Align the exhaust system so it is free of stress [⇒ page 182](#).

**Tightening torques**

- ◆ [⇒ "1.1 Exploded view - silencers", page 175](#)

- ◆ [⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation](#)

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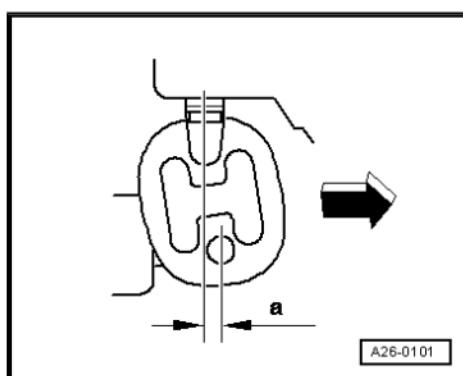
## 1.4 Stress-free alignment of exhaust system

**Procedure**

- The exhaust system must be aligned when it is cool.

Vehicles without clamps between centre silencer and rear silencers

- Loosen bolted connections on front clamps.
- Push exhaust system towards front of vehicle -arrow- until mountings in front of centre silencer are preloaded by -a- = 6 ... 10 mm.
- Tighten bolted connections on clamps evenly.
- Align tailpipes [⇒ page 183](#).

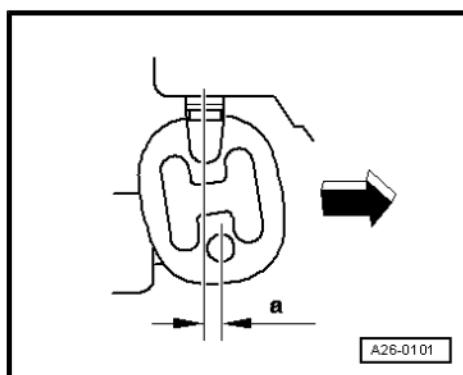


Vehicles with clamps between centre silencer and rear silencers

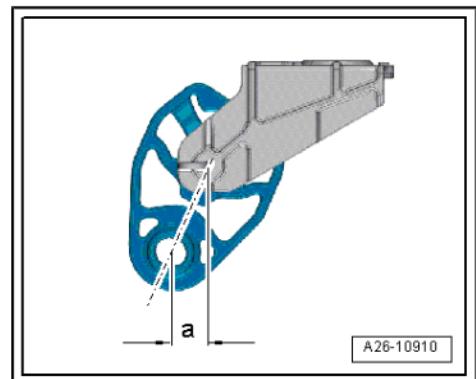
**Note**

*On a vehicle with clamps fitted between the centre silencer and rear silencers, it is also necessary to align the centre silencer.*

- Loosen bolted connections on front and rear clamps.
- Push exhaust system towards front of vehicle -arrow- until mountings in front of centre silencer are preloaded by -a- = 6 ... 10 mm.
- Tighten bolt connections on front clamp evenly.



- Push rear section of exhaust system towards front of vehicle -arrow-, so that mountings (rear) for rear silencers are preloaded by  $-a = 11 \dots 15 \text{ mm}$ .
- Align rear silencers so they are horizontal.
- Tighten bolted connections on rear clamps evenly.
- Align tailpipes [⇒ page 183](#) .

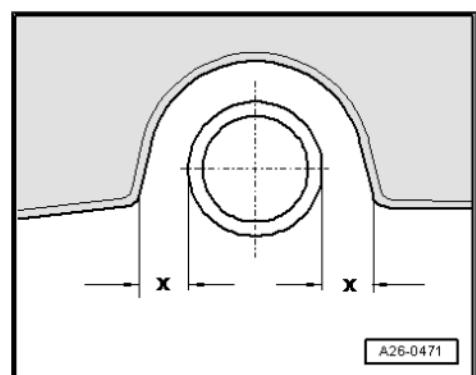


#### Aligning tailpipes

- Check clearance between tailpipes and bumper on both sides:
- Dimension  $-x-$  (left-side) = dimension  $-x-$  (right-side)

#### Tightening torques

- ◆ [⇒ "1.1 Exploded view - silencers", page 175](#)



## 1.5 Checking exhaust system for leaks

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 26 ; Exhaust pipes/silencers; Checking exhaust system for leaks .



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## 2 Emission control system

- ⇒ [“2.1 Exploded view - emission control system”, page 184](#)
- ⇒ [“2.2 Removing and installing catalytic converter”, page 184](#)
- ⇒ [“2.3 Removing and installing exhaust flap control unit J883”, page 187](#)

### 2.1 Exploded view - emission control system

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 26 ; Emission control system; Exploded view - emission control system .

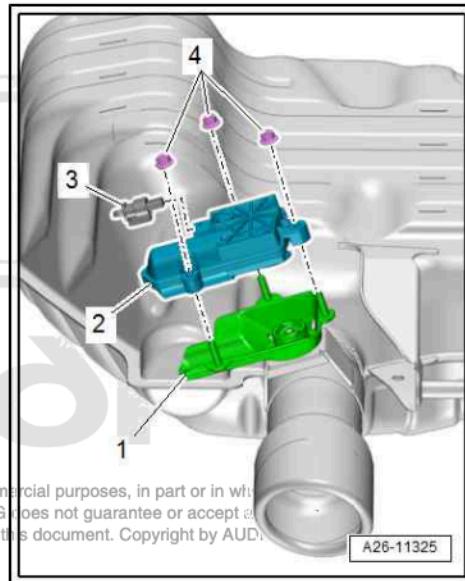
Exhaust flap control unit - J883- - tightening torque



Note

Renew nuts.

- Tighten nuts -4- to 3 Nm.



### 2.2 Removing and installing catalytic converter

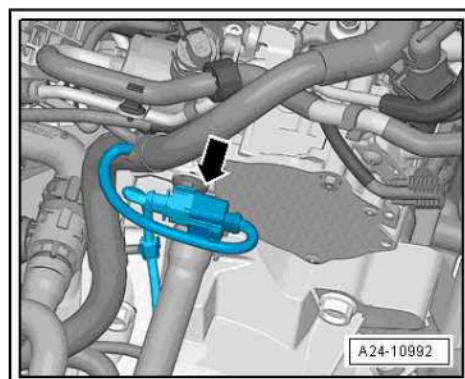
⇒ [“2.2.1 Removing and installing catalytic converter - vehicles without hybrid drive”, page 184](#)

⇒ [“2.2.2 Removing and installing catalytic converter - vehicles with hybrid drive”, page 185](#)

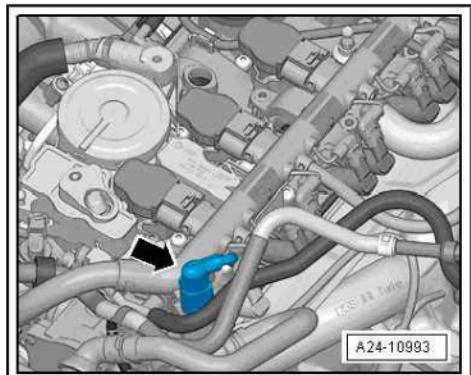
#### 2.2.1 Removing and installing catalytic converter - vehicles without hybrid drive

Removing

- Unplug electrical connector -arrow- for Lambda probe after catalytic converter - G130- and Lambda probe 1 heater after catalytic converter - Z29- and move wiring clear.



- Unplug electrical connector -arrow- for Lambda probe - G39- and Lambda probe heater - Z19- and move wiring clear.
- Remove air cleaner housing [⇒ page 152](#).
- Remove front silencer [⇒ page 181](#).



- Remove nuts -arrows- and lift out catalytic converter.

**Installing**

Installation is carried out in the reverse order; note the following:



**Note**

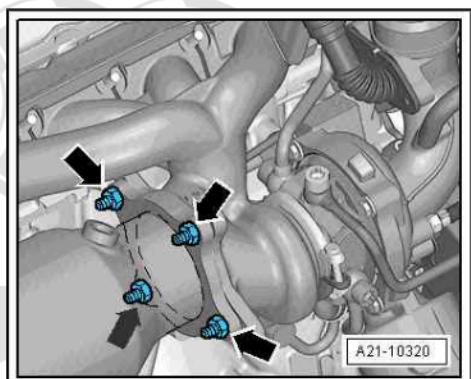
*Renew seals, gaskets and self-locking nuts.*

- Install front silencer [⇒ page 181](#).
- Install air cleaner housing [⇒ page 152](#).

**Tightening torques**

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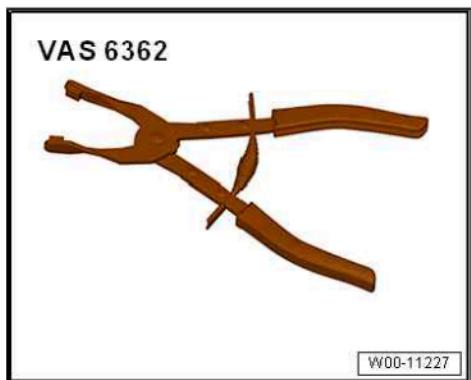
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## 2.2.2 Removing and installing catalytic converter - vehicles with hybrid drive

Special tools and workshop equipment required

- ◆ Hose clip pliers - VAS 6362-



**Removing**



**DANGER**

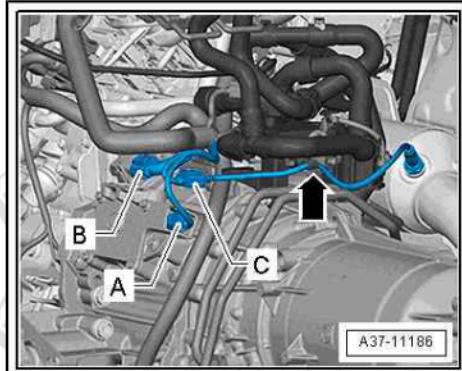
High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- The high-voltage system must be de-energised by a suitably qualified person.

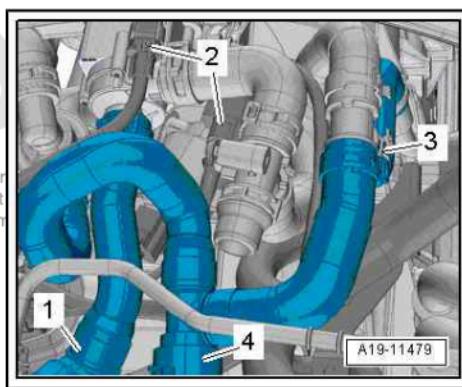
- De-energise high-voltage system ⇒ Electric drive; Rep. gr. 93 ; De-energising high-voltage system .
- Drain coolant  
[⇒ "1.3 Draining and filling cooling system", page 83](#) .

- Remove plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber partition panel .
- Unplug connector -A- for high-voltage wiring harness for drive motor - PX2- and connector -B- at drive motor rotor position sender 1 - G713- on top left of gearbox.
- Unplug electrical connector -C- for Lambda probe after catalytic converter - G130- and detach from cable tie -arrow-.

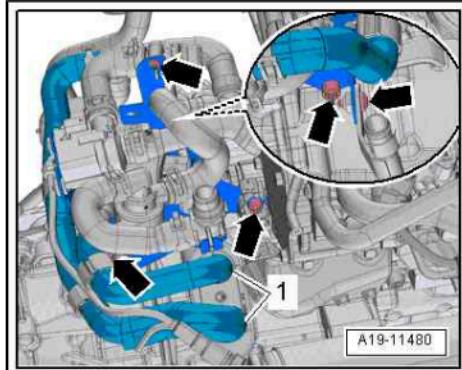


- Lift retaining clips -1, 4-, release hose clip -3- and detach coolant hoses.
- Unplug electrical connectors -2- and move wiring clear.

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- Release hose clips -1- and detach coolant hoses.
- Unscrew bolts -arrows- and remove pump unit.
- Remove air cleaner housing [⇒ page 152](#) .
- Remove front silencer [⇒ page 181](#) .



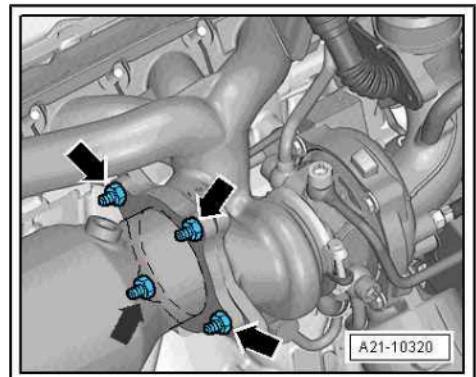
- Remove nuts -arrows- and lift out catalytic converter.

#### Installing

Installation is carried out in the reverse order; note the following:



- ◆ *Renew seals, gaskets and self-locking nuts.*
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*



- Install front silencer [⇒ page 181](#) .
- Install air cleaner housing [⇒ page 152](#) .
- Install plenum chamber partition panel ⇒ General body re-pairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber partition panel .



High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- The high-voltage system must be re-energised by a suitably qualified person.

- Re-energise high-voltage system ⇒ Electric drive; Rep. gr. 93 ; Re-energising high-voltage system .
- Connect coolant hose with plug-in connector [⇒ page 119](#) .



*Do not reuse coolant.*

- Fill up with coolant [⇒ page 83](#) .

#### Tightening torques

- ◆ [⇒ "2.2.4 Exploded view - electric coolant pump, pump unit, vehicles with hybrid drive", page 94](#) Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability
- ◆ [⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI, Rep. gr. 26 ; Emission control system; Exploded view - emission control system](#)

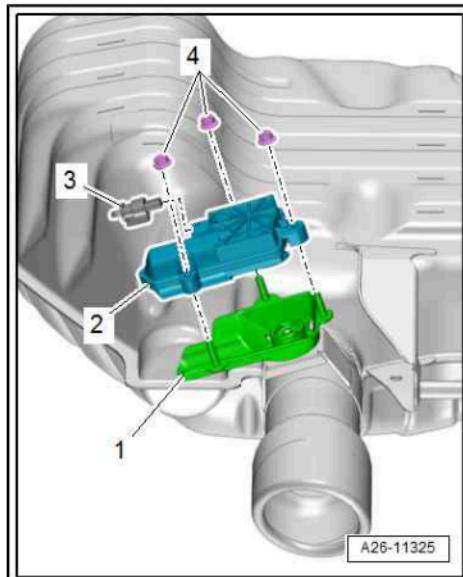


## 2.3 Removing and installing exhaust flap control unit - J883-

#### Removing

- Unplug electrical connector -3-.
- Lower exhaust system (rear left).

- Remove nuts -4- and detach exhaust flap control unit -2-.



#### Installing

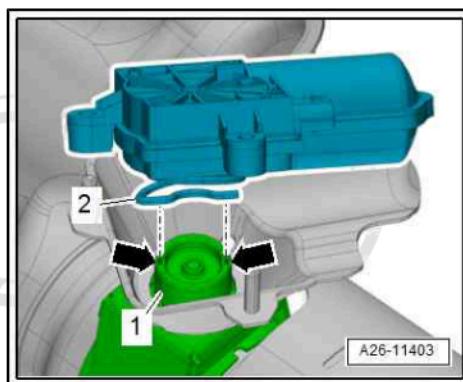
Installation is carried out in reverse order; note the following:



Note

*Renew nuts.*

- Move exhaust flap control unit - J883- into installation position.
- Spring -2- must engage in grooves -arrows- on exhaust flap -1-.



#### Tightening torques

- ◆ [⇒ Fig. ““ Exhaust flap control unit -J883- - tightening torque”“, page 184](#)

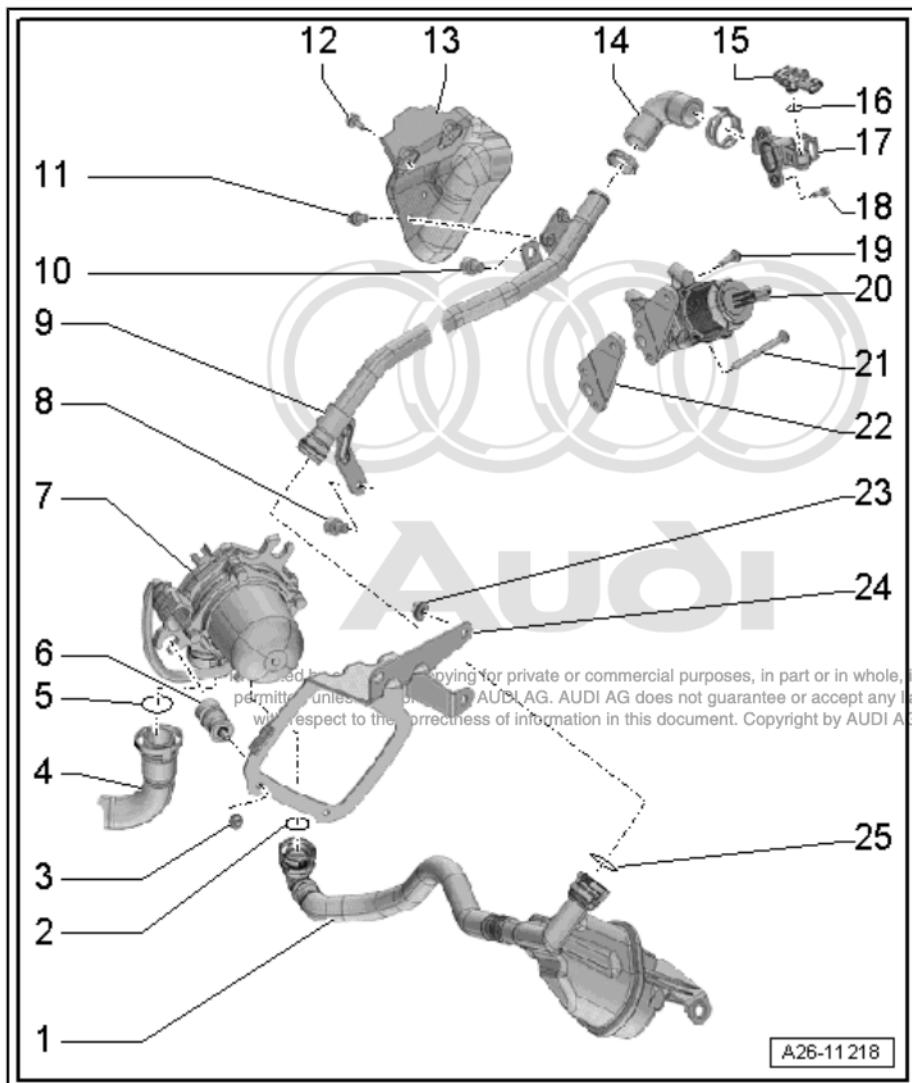
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### 3 Secondary air system

- ⇒ "3.1 Exploded view - secondary air system", page 189
- ⇒ "3.2 Removing and installing secondary air pump motor V101", page 190
- ⇒ "3.3 Removing and installing secondary air inlet valve N112", page 190
- ⇒ "3.4 Removing and installing sender 1 for secondary air pressure G609", page 191

#### 3.1 Exploded view - secondary air system

- 1 - Hose
  - For secondary air
  - With resonator
- 2 - O-ring
  - Renew
- 3 - Nut
  - 9 Nm
- 4 - Hose
  - For secondary air
- 5 - O-ring
  - Renew
- 6 - Bonded rubber bush
- 7 - Secondary air pump motor - V101-
  - Removing and installing  
⇒ page 190
- 8 - Bolt
  - 23 Nm
- 9 - Pipe
  - For secondary air
- 10 - Bolt
  - 23 Nm
- 11 - Bolt
  - 9 Nm
- 12 - Bolt
  - 9 Nm
- 13 - Heat shield
- 14 - Hose
  - For secondary air
- 15 - Sender 1 for secondary air pressure - G609-
  - Removing and installing ⇒ page 191
- 16 - O-ring
  - Renew



A26-11218

17 - Connection

18 - Bolt

9 Nm

19 - Bolt

19 Nm

20 - Secondary air inlet valve - N112-

Removing and installing [page 190](#)

21 - Bolt

9 Nm

22 - Gasket

23 - Nut

9 Nm

24 - Bracket

For secondary air pump motor - V101-

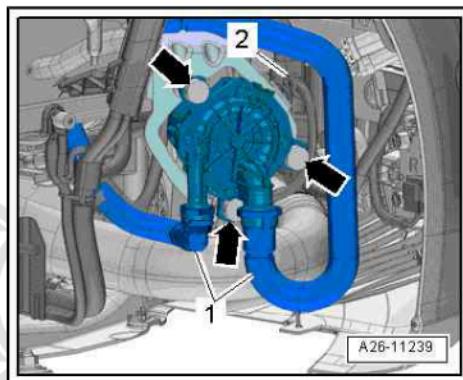
25 - O-ring

Renew

### 3.2 Removing and installing secondary air pump motor - V101-

Removing

- Remove wheel spoiler (front left) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front) .
- Unplug electrical connector -2-.
- Press release tabs and disconnect secondary air hoses -1-.
- Disengage secondary air pump motor - V101- at bonded rubber bushes -arrows- and detach.



Installing

Installation is carried out in reverse order; note the following:



Note

Fit new O-rings.

Tightening torques

- ◆ [⇒ "3.1 Exploded view - secondary air system", page 189](#)
- ◆ Wheel spoiler ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front)

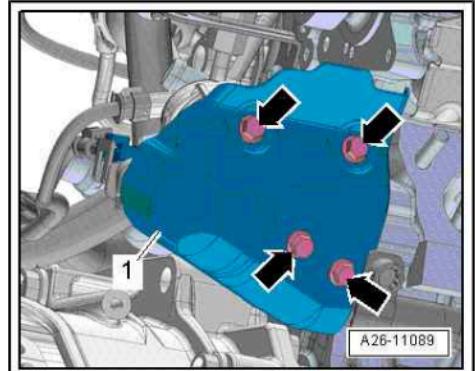
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### 3.3 Removing and installing secondary air inlet valve - N112-

Removing

- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

- Remove plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber partition panel .
- Remove bolts -arrows- and detach heat shield -1-.



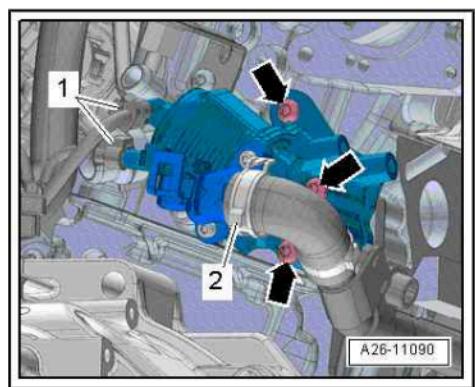
- Unplug electrical connectors -1-.
- Loosen clamp -2-.
- Remove bolts -arrows- and detach secondary air inlet valve - N112- from hose for secondary air system.

#### Installing

Installation is carried out in reverse order; note the following:



*Renew seal.*



- Install plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber partition panel .
- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

#### Tightening torques

- ◆ ⇒ “3.1 Exploded view - secondary air system”, page 189

### 3.4 Removing and installing sender 1 for secondary air pressure - G609-

#### Removing

- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

- Unplug electrical connector -1-.
- Release catches -arrows- and detach sender 1 for secondary air pressure - G609- .

#### Installing

Installation is carried out in reverse order; note the following:

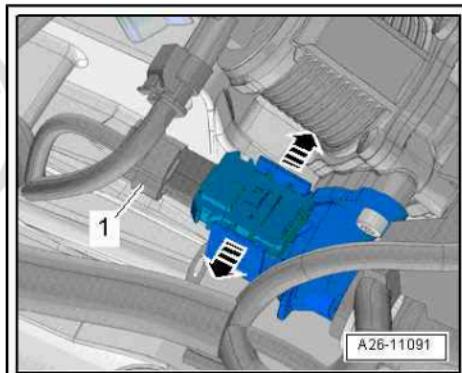


Note

*Fit new O-ring.*

- Install engine cover panel ⇒ **Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel;**

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## 4 Exhaust manifold

The exhaust manifold and the turbocharger are combined as one unit; removing and installing

⇒ ["1.2 Removing and installing turbocharger", page 130](#).



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## 28 – Ignition system

### 1 Ignition system

- ⇒ “1.1 Exploded view - ignition system”, page 194
- ⇒ “1.2 Removing and installing ignition coils with output stages”, page 194
- ⇒ “1.3 Removing and installing knock sensor 1 G61 ”, page 194
- ⇒ “1.4 Removing and installing Hall sender”, page 194
- ⇒ “1.5 Removing and installing engine speed sender G28 ”, page 195

#### 1.1 Exploded view - ignition system

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system .

#### 1.2 Removing and installing ignition coils with output stages

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Removing and installing ignition coils with output stages .

#### 1.3 Removing and installing knock sensor 1 - G61-

Vehicles with hybrid drive:

##### WARNING

- High voltage can cause fatal injury.  
Danger of severe or fatal injuries from electric shock.
- Note safety precautions when working in the vicinity of high-voltage components.

- Safety precautions when working in the vicinity of high-voltage components  
⇒ “2.2 Safety precautions when working in the vicinity of high-voltage components”, page 3

All vehicles:

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Removing and installing knock sensor 1 G61

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#### 1.4 Removing and installing Hall sender

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Removing and installing Hall senders .

## 1.5 Removing and installing engine speed sender - G28-

Vehicles with hybrid drive:

### WARNING

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- Note safety precautions when working in the vicinity of high-voltage components.
- Safety precautions when working in the vicinity of high-voltage components  
⇒ [“2.2 Safety precautions when working in the vicinity of high-voltage components”, page 3](#)

All vehicles:

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Removing and installing engine speed sender - G28- .



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